

Amateur Radio



VOL 54, No 8, AUGUST 1986

JOURNAL OF THE WIRELESS
INSTITUTE OF AUSTRALIA



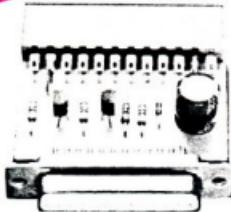
ST JUPAT arrives in Sydney
VK/ZL/OCEANIA CONTEST
— 1985 results; 1986 rules
Novel Way to Learn MORSE
FIELD DAYS can be fun



The AUSTRALIAN ELECTRONICS Monthly



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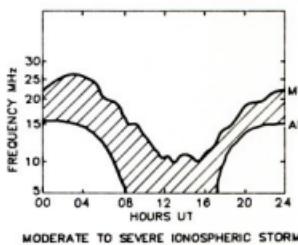
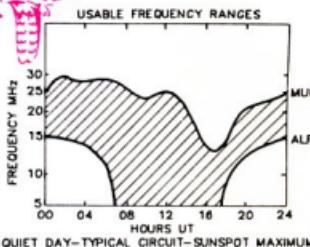


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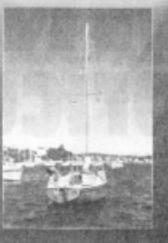
In the past, electronics magazines in Australia have promised 'bigger/brighter/better' things to come, but have never quite matched the performance with the promise.

But not us.

For starters, we are going to significantly expand our project content — like *double*, would you believe?

Interested? Like to find out more?

STAY TUNED. SAME TIME, THIS MAGAZINE, NEXT MONTH



St Jupat resting in Watson's Bay, Sydney Harbour, after a gruelling trip across the seas, see page 6.

Photograph courtesy Stephen Pall VK2PS

Jenny VK5ANW, has created many firsts for YLs in South Australia during the short time she has been an amateur, see page 3.

Photograph courtesy Peter Koen

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Material should be sent direct to PO Box 300, Caulfield South, Vic. 3162.

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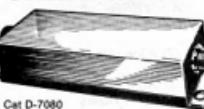
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B.243/M



Thumbnail Sketches

Peter Koen

27 Hoskin Avenue, Kidman Park, SA. 5025

JENNIFER (Jenny) WARRINGTON VK5ANW

Jenny first became interested in amateur radio in 1973, when her OM, Mike attended AOPC classes and subsequently sat for and passed his limited licence in December 1974. Twelve months later he brought home a brand-new Weston 551 two-metre rig, and rashly stated that it was her Christmas present, so it was decided that perhaps she had better get her licence to go with it!

With the help of instructors, David VK5HP and Murray VK5YH, she finally became licenced in December 1977, with the call sign of VK5ZBI. This was the call sign that Mike had held since 1974, but in October 1977, he had obtained his full call of VK5AMW and the Department of Communications approved the change-over of the "ZBI" call sign.

Sometime in the first half of 1975, Myrna VK5YW, had introduced Jenny to a magazine produced by LARA (later known as ALARA, the Australian Ladies Amateur Radio Association). Jenny became a member, and at a later date became the State Representative for VK5, a position she has held until 1983, when she became Secretary.

Around March/April 1979, Jenny was asked if she would organise the Supper, at very short notice, for the next meeting of the WIA. She was still doing this "temporary fill-in" 12 months later!

She obtained her full call in April 1980, and became VK5ANW (quickly dubbed, Australia's Nicest Woman!). Having been asked if she would nominate for Council, she became the first YL to be elected to the VK5 Divisional Council (also April 1980), and served the first year as the Club's and Country Members Representative (also still Supper Organiser).

In April 1981, she became the Minutes Secretary and attended the Federal Convention as Observer, with the idea that she would possibly become Federal Councillor two years hence. However, things did not go as planned and in July 1981, she became the first YL on Federal Council, as Councillor to the VK5 Division. She was still Federal Councillor and Minutes Secretary from April 1982 to 1983, and from 1983 to 1984 was Federal Councillor and Vice-President. (She also

became Temporary Five-Eighth Wave Editor for one month in the early 80s and is still providing excellent notes of the Divisions news each month).

In April 1984, she became Secretary and Vice-President, and held both positions until April 1986, when she became the first YL to be elected President to the VK5 Division (and second in the 75 years of the WIA's history, the first being Susan Brown VK2BBS, former President of the VK2 Division).

Ask Jenny to comment on these events, and she says, "Well, I didn't set out to do any of these things, and in the beginning I was very reticent to become the first YL in these male dominated areas. I remember telling Ian Hunt VK5OX, the then President of the VK5 Division, who asked me to nominate for Council, that I didn't want to be 'just a mascot'. If I joined Council I wanted to 'pull my weight' but I was very aware of my limitations, particularly in technical areas, also, as I was breaking new ground, I was not sure of my reception by the OMs. I need not have worried, both at the Divisional and Federal levels they could not have been kinder or more considerate. And, apparently my presence did not inhibit them to any great extent. They didn't stop telling risqué jokes, they merely apologised beforehand and then went on with it anyway!"

"I would like to think that seeing YLs such as myself, in prominent positions, will encourage other YLs to join the hobby and to take active roles themselves. We now have, or have had, YLs on the VK2, 4, 5, and 6 Divisional Councils, and Brenda Edmonds VK3KT, as Federal Education Co-ordinator. There are also many more YLs working for the good of amateur radio in less conspicuous, but no less important positions. I hope that this trend will continue. We are never likely to 'take over' nor would we want to, but we all have talents to contribute and I thank all those OMs who had enough faith in me, to let me contribute mine."

AMATEURS HONOURED



Photograph courtesy Peter Koen, Secretary VK5BPA

Peter Koen, Secretary of VK5BPA, and John O'Dea VK5KOP, of Victor Harbour, at Government House, SA, on May 4, 1986 when both received Medals of Merit for service to Scouting from the South Australian Governor, Sir Donald Dunstan.

Jenny VK5ANW, accepts the "President's Gavel" from Immediate Past-President, Dick VK5ARZ, at the Burley Griffin Building, when Jenny was elected as President of the VK5 Division.



Editor's Comment

HAMADS

You all know the Hamads, in even smaller type on the back page, where providing you are an Institute member you may have up to eight lines free of charge to tell us all what you have to sell or what you want to buy.

"So what?" you say, "What is there about Hamads that makes it worth an Editorial?" I would have thought the same until a few weeks ago, when three items involving Hamads all came up at the same Publications Committee meeting. Being a person of quick wit and long experience, your worthy producer Ken said to your unworthy Editor, bereft as usual of editorial theme, "There's your next editorial: Hamads!". Or, to be more specific, he said "Why aren't people using Hamads?". Well, why aren't you?

Before you grab for pen or keyboard and dash off a fast reply, don't! Not yet, anyway. We think we know why. If you still feel impelled to make a contribution to Australia Post, read the rest and tell us we're wrong.

One of the three items was a letter from a reader who queried the lead time of about six weeks for all AR material, including Hamads. He suggested that one week would be more sensible. Unfortunately, it just ain't so! ALL material has to go to the printer by a date (about four weeks before the magazine reaches you) which enables the printing to be costed at a concession rate. No doubt they could produce it in one week, or even less, if we paid more for the privilege! Time is money. But before it goes to the printer it must be typeset. About half a million keystrokes per issue! Two people do that job in little over a week. Sure, it could be quicker. There could be more than two, but they don't work for nothing! It's your money, folks! If you want to know more, read the article in September 1985 in which the production sequence is described.

So maybe some readers with gear for sale aren't willing to wait six weeks for their ads to reach the market place. Fair enough, but where else can you advertise it for free?

Next point. We note that AR is not the only magazine in which the number of ads has dropped off over the last few years. People are simply not selling as often as they used to. Two good reasons. Due to our rather sadly diminishing dollar, new gear costs more. The obvious answer is to make do with the old for longer. And if your long suit is HF DX, there isn't a lot of it around now, right in the middle of the sunspot trough, so again why buy a new rig when it's not going to be used so much? Right?

The third item really has nothing to do with the Hamads lull, but was a suggestion that all ads for sale of equipment should carry serial numbers, which could be checked against the current list of stolen gear. But somehow we can't see thieves holding on to their "hot" equipment for six weeks, rather than trying to unload it as fast as possible. Besides, they wouldn't be WIA members, would they? Still, we are now going to put the stolen list on the same page as the Hamads, for easy reference. 73 for now.

Bill Rice VK3ABP
Editor

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THE VOYAGE OF ST JUPAT

Stephen Pall VK2PS
PO Box 93, Dural, NSW. 2158

Nandor Fa, a 32-year-old ship-builder and 30-years-old Jozsef (Joe) Gal, a mechanical engineer, left the north eastern shores of the Adriatic Sea on September 26, 1985 after they had been preparing for the round-the-world trip for five years. It was quite a unique task, as Hungary is a land-locked country in central Europe, and besides the Danube River, which crosses the country from north to south, the only navigable waterway is an inland lake, the Lake Balaton which is about 80 km long and 15 km wide at some parts. With its 595 km², Lake Balaton is the largest lake in central Europe.

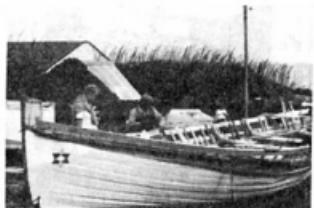
The boat, called *St Jupat* was named after the Hungarian patron saint of the sailing boats and kayak enthusiasts. The hull of the boat was built by the Ganz Danubius Ship Building Company, commemorating the 150th Anniversary of the Hungarian shipping industry. Nandi and Jozsef were then set the task of equipping and fitting-out the boat to their design and requirements. Out of the two would-be sailors, only Nandi had some prior sailing experience.

Once the boat was fitted out it was taken by the two adventurers on a "Shake-Down" 3200 km trip around the Adriatic Sea. Some modifications and internal re-arrangements followed this cruise. Seeing that their dream is coming to fulfillment, the two sailors started to receive some assistance from the Hungarian public and authorities, who had previously been very sceptical about the success of the venture.

Photograph contributed by Lajos Nagyvai HASDN

In the March 1986 issue of Amateur Radio there was a report about two young Hungarian sportsmen who took on the mighty oceans in a 30 foot (9m) long, nine feet (2.5m) wide, four ton (4 tonnes) sailing boat. It is with some relief to them, their families and for those who followed their path, that on May 20, 1986 they sailed into Sydney Harbour in good health with a boat that shows the ravages of the sea.

Photograph contributed by Lajos Nagyvai HASDN



Nandi, the Ship Builder, visited a colleague whilst on Tristan da Cunha.

Photograph contributed by Lajos Nagyvai HASDN



Jozsef visited the Club Station at Cape Town and had an enjoyable chat with Don ZS1QM.

After some rest, recuperation and replenishment of necessary supplies, they sailed for Australia on March 12.

Two days later, they were struck by a severe storm and life on-board became difficult. Wet, and tired, they tried to keep the tiny boat on an even keel in mountainous seas. On March 27, the storm capsized the boat, rolling it over about 60 degrees. Completely flooded, it took several days to bail out the water and dry out the boat, added to the fact that their video, and radio equipment, and the generator were damaged. (Communications with the outside world were lost for about five days).

Before departing Hungary, both sailors had undergone an examination and tests in their sailing skills before the respective Hungarian authorities. Further study and examinations followed for them to receive their amateur radio licence and official call sign HG4SEA/MM.

On board the boat is a marine VHF radio and an RT-7. When time and weather permitted regular checks were kept on the amateur bands. With their Hungarian base station, HA4KYN, they kept

Photograph contributed by Lajos Nagyvai HASDN

The peaks of Martin Vas Island (PY0) as seen by Jozsef and Nandi.

From Opatija, Yugoslavia in the north-eastern corner of the Adriatic Sea, they sailed for one month through the Mediterranean Sea, reached Gibraltar, replenished their food and fuel supplies and, after three days rest, sailed on to the Canary Islands. After a short stop they then sailed to the Island of Cape Verde and the Island of Tristan da Cunha, before reaching Cape Town, South Africa, on February 2, 1986.



Photograph contributed by Lajos Nagyvai HASDN

The village, which is the only settlement on Tristan da Cunha (ZD9), when the *St Jupat* arrived during their sail-boat world trip.

*HUNGARIAN RADIO AMATEUR STATION
*HG4SEA/MM
on Sailboat "ST JUPAT"
sailing around the World



DATE 1/1 RPT 3/1
CALL OM 558 14
REMARKS 3.5 MHz

PEACE AND FRIENDSHIP
PSE QSL THX Po Box 214 H-1388 Budapest 731
Re: Jozsef (HA4KYN) Nandor (HA4WNI) Chm by HA 5 HF Robert



Photograph contributed by Lajos Nagyvai HASDN



Nandi mixing the basic material for *St Jupat* Bread in the Indian Ocean between Cape Town and Sydney.

regular sprints on 3.660; 7.050; 21.260 and 14.260 MHz, time of day and propagation permitting. In the vastness of the Indian Ocean, 14.314 was their regular contact frequency. Terry ZL1MA, and in the last two weeks of their voyage, Les ZL1BIN, supplied them with regular weather reports on 14.295 MHz.

Battling huge seas, dampness, sea-water, salt, shortage of fresh food, and a very poor functioning generator to charge their radio batteries, contact was lost with the boat for more than a week. Friends of Nandi and Jozsef in Hungary became anxious and telephone calls were made to the Hungarian community in Sydney asking for assistance. At the end of April, the New South Wales Divisional Broadcast, VK2WI appealed to amateur radio operators to keep a listening watch for them.

Eventually, faint signals were heard and reported to Mike Petrey, who besides being of Hungarian origin, is a senior civilian instructor in electronics at HMAS *Nimbin* in Sydney.

On May 10, the first regular daily contacts were established between Nandi, activating HG4SEA/MM from *St Jupat*, and Roger VK2XJ, Peter VK2OG, and Steve VK2PS.

The two sailors followed the *Roaring Forties* eastward. Nearing Western Australia they were advised to avoid the Great Australian Bight and Bass Strait. They decided to go further south to the 46th latitude and sail around Tasmania. On May 10, their position was reported to Steve VK2PS as 44 degrees and 47 minutes south and 122 degrees, 38 minutes east, with strong winds of 35-40 knots. On the same evening, a successful contact was made on 7.050 MHz.

On May 16, they reported their position as 37 degrees, 44 minutes south and 151 degrees, 48 minutes east. They were also able to receive the

happy message, which was relayed to them, that Jozsef had become a father. His wife in Hungary had given birth to a healthy 3500 grams, 45 centimetre son. The two weary sailors opened a bottle of riesling wine, bought for this anticipated occasion in Cape Town, and drank a toast to the health of the newborn. (It was moving to listen to their happy voices over the crackle of the static on SSB).

By May 17, they were 36 degrees, five minutes Latitude, and travelling at an average speed of five knots per hour. That same night, the first contact was made with them on 3.830 MHz.

In the meantime, the Sydney Hungarian Community swung into action to prepare a welcome. Members of the Cruising Yacht Club of Australia were approached and landing rights and a berth were secured for the boat. An ad-hoc welcoming committee *The Friends of St Jupat* was formed.

The anticipated day of arrival was May 20, but ironically the boat made such good speed in the last days before arrival, that it arrived 20 hours early. Consequently, they had to anchor off Bondi Beach for the night as the welcoming schedule could not be altered.



St Jupat, after customs clearance, leaves Watsons Bay, in Sydney Harbour.

Photograph courtesy Royal Australian Navy

Sydney Harbour was at its best on Tuesday, May 20. Bright sunshine greeted the intrepid sailors and their boat as they motored up Sydney Harbour under the guidance of the local sailing boat *Shenandoah III*, skippered by Julius Charody, a member of the CYA at Rushcutters Bay.

The wharf was crowded with media personnel, including some helicopter crews from television stations, and hundreds of members of the Hungarian community who greeted their heroes in



On board St Jupat, after arrival are from left: Jozsef, Peter VK2OG and Nandor.

Photograph courtesy Royal Australian Navy

the traditional Hungarian way — freshly baked bread, salt, wine and the sounds of Hungarian folk-music and tapping of the "Kodaly" local Hungarian dance company. Officials of the Sydney Hungarian Consulate were also present.

Welcomes were bestowed on the sailors by Julius Charody, on behalf of the yachting fraternity, Mike Petery, on behalf of the Hungarian community, Steve Pall VK2PS, on behalf of the NSW Division of the WIA, and Peter Overton VK2OG, on behalf of the Australian Navy and amateur radio operators.



Welcome on "dry" land. From left: Mike Petery, Nandor, Mike Mercz, with violin, Jozsef, and Peter VK2OG.

Photograph courtesy Royal Australian Navy

Nandor and Jozsef anticipate staying in Sydney for a number of months so they may carry out necessary repairs and maintenance to their boat before they set-sail for New Zealand.

Around Christmas time, another dangerous part of their journey will begin when they head eastwards along the 50th southern latitude towards South America, rounding Cape Horn and landing in Buenos Aires. They then plan to sail into the Caribbean, following the eastern South American coastline, then across the Atlantic Ocean towards the port of Opatija.

Nandor and Jozsef, when asked why they were undertaking such a voyage, said: "We really do not know. Ever since we read Sir Francis Chichester's book about his solo sailing around the world, we knew we had to follow his example. No Hungarians before us, ever sailed the seas in a small boat like ours, and ours is the first Hungarian sailing boat ever to visit Australia."



HANDS ACROSS AMERICA

On May 25, about five million citizens, coordinated by over 3500 radio amateurs, held hands for 15 minutes to promote public awareness of the homeless and to raise funds on their behalf.

Radio amateurs were assigned to each mile of their route and provided primary communications for the event. They reported the status of the line back to their state command posts. The state command posts were in constant contact with the east and west control stations.

The west coast control station, W6RO, was located in the berthed Queen Mary ocean liner, and was headed by Tim Loewenstein WA0IVW.

The east coast control station was headed by ARRL Vice-Director, Steve Mendelsohn WA2DHF.

State command posts were linked to each other and the east and west command post through a tele-conferencing network, which was out together by Lou Appel KG1UQ.

From The ARRL Letter, June 6, 1986

JARL CODE PRACTICE

The Japan Amateur Radio League (JARL), using its station JA1RL, has started to transmit regular bulletins of interest and relevant information to its members.

This station transmits CW practice on 7.030 MHz \pm 5 kHz. SWL reports are solicited.

From The ARRL Letter, June 6, 1986

NICKEL CADMIUM BATTERIES

Nickel Cadmium Battery failures are usually classed into two major categories:

Permanent — degraded performance caused by a failure which does not permit the battery to be reconditioned electrically to an acceptable performance level.

Reversible — a normal performance level is not met but the condition can be corrected by electrically processing the unit, thus restoring the original performance level.

Permanent failures generally are caused by an internal short, open, or excessive loss of electrolyte. Although it is possible under controlled conditions to electrically remove internal short circuits, field repairs for this condition are not recommended.

Reversible failures are generally caused by repetitive use patterns on the order of repetitive depth of discharge or long periods of over-charge. This is commonly referred to as a memory. Memory effect of a NiCd battery is described as a temporary loss of capacity, or an inability to deliver the proper voltage over the normal discharge cycle. This phenomenon becomes apparent when repetitive shallow charge/discharge rate patterns are maintained. The battery becomes more conditioned to deliver only slightly more voltage than its previous repetitive requirements.

It is a completely reversible failure and can be eliminated by cycling the battery through an extended discharge period followed by a normal charge period. Discharging can be accomplished by placing a suitable load resistor across the battery positive and negative contacts. When the voltage reaches one volt/cell, remove the load and recharge the battery at the normal rate.

A fully charged standard capacity battery should discharge to one volt/cell in 60 minutes using this method. A heavy duty battery will require about 45 percent additional time to discharge. Two additional cycles will assure removal of all memory condition.

Although over-charging of NiCd batteries longer than the required charge time will not permanently harm them, a loss of capacity similar to the memory condition can occur. Due to chemical processes within the battery, the internal resistance is increased, causing the voltage to drop prematurely depending on the length of overcharge time. See Figure 2, which shows the discharge curve at the C rate and room temperature. Recovery is effected in the same manner as previously described.

From TCA January 1986

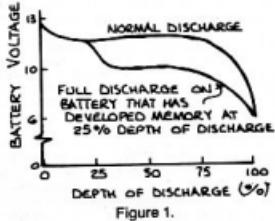


Figure 1.

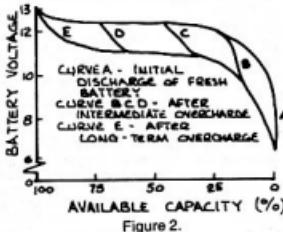


Figure 2.

EARLY RAAF TRANSMITTERS — The Type AT1

E C Roberts VK4QI

38 Bernard Street, Rockhampton North, Qld.

4701

The 500 watt RAAF Type AT1 transmitters were designed and manufactured by RAAF Signals Staff at the RAAF Station, Laverton for several years from about 1929.

Apart from valves, transformers, and meters, they were completely built by workshop personnel, including condensers, (sorry capacitors), coils, base-boards, etc.

The transmitter comprised of two polished wooden base-boards; one for the RF section and the other for the rectifier unit. A third unit was a keying and switching relay unit using two workshop manufactured brass PMG type sounder relays. One relay was the keying relay and the other switched the primary 240 volt circuit to the HT and filament transformer. This was switched on by the first touch of the key and switched off by changing the polarity of the keying voltage. Another tap on the key opened the switching relay and switched the transmitter off. (Many were the times I was zapped whilst adjusting the switching relay with one hand on each of the gap and tension adjusting screws simultaneously).

The rectifier unit consisted of two Valve Type VU7s as a full wave rectifier. The then current RAAF nomenclature for valves was:

VT — Valve Transmitting; VR — Valve Receiving; and VU — Valve Unidirectional for rectifiers.

These VU7s were called "football" valves pertaining to their shape. They had no base and connections were made via a flying lead out of the top pinch of the valve for the anode.

Similarly, a pair of flying leads were brought out of the bottom pinch for the filament of the valve. There was definitely no need for valve connection diagrams!

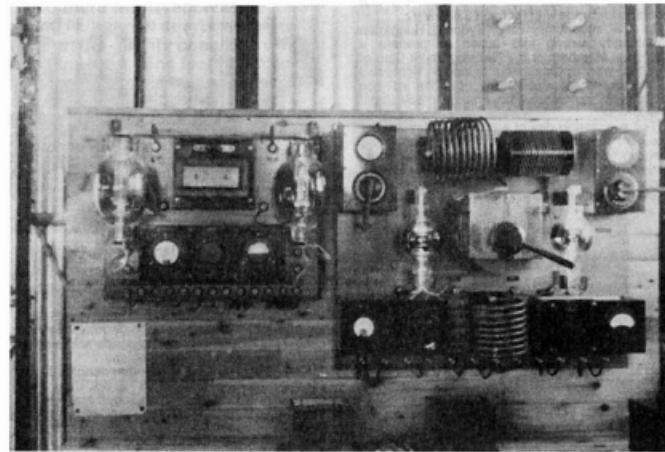
These flying leads were duly connected to screw terminals. The HT voltage from the transformer was some 3 KV and the transformer and filter condenser and choke were mounted outboard of the rectifier unit. The rectifier filaments were quick heating "bright emitter" types.

Because of this quick heating factor, the whole transmitter could be switched on remotely and ready for almost instantaneous use. This was the basis of the power switching mentioned previously and it was very effective but required periodic attention to spring tension and gap adjustment of the sounder type switching relays.

The RF section was a push-pull Tuned Anode Tuned Grid (TATG or PTG) oscillator which was inductively coupled through series tuning condensers to an Aerial and Counterpoise. The frequency range was approximately from 2.5 to 15 Mc/s, or in modern terms MHz. This coverage was achieved by a series of plug-in coils consisting of three coils per range; one each for grid (L1), anode (L2) and aerial (L3).

The oscillator valves (in fact, the only RF valves) were VT30s and sometimes VT4s. These valves were again flying-lead types with the grid lead out of the bottom pinch on the VT30 and a screw terminal on the side of the VT4 for the grid.

Although archaic by modern standards, these transmitters gave a sterling performance carrying long distance point-to-point services throughout Australia and New Guinea, up to and after the outbreak of war in 1939. They were also used on international service until superseded and also carried the bulk of HF ground-air watches until they were eventually superseded in this service also. I believe a couple of the Darwin AT1s had a new lease of life at Batchelor, Northern Territory, for some time, but that was their last dying gasp, at least in the Northern Territory.



By today's standards, one would seriously question the drift and frequency stability of a transmitter which was keyed immediately at switch-on; sometimes for periods of 10 or 15 minutes non-stop in traffic. With such a relatively unstable arrangement of a self-excited oscillator direct into the aerial from a cold start, the resultant drift must have been astonishing.

However, the state-of-the-art receivers were very forgiving as their selectivity was very little better and the receiving operators were able to adjust to these variations quite easily.

When tuning the transmitter (from a tuning chart initially), there were two positions of grid tuning very close together in which the transmitter would oscillate; one much more actively than the other. It was common practice to check this by drawing an arc from the anode coil to a lead-pencil and selecting the broadest arc position for grid tuning. A few hardy (foolhardy?) souls did actually dispense with the lead-pencil and checked the arcs with a saliva covered index finger.

(I know of this as I was one of a number of operators who used this method!) If the anodes had not been shunt fed, the first time would probably have been the last, or at least there would have been only one malfunction per operator and the practice would have ceased due to a shortage of operators). I do not condone the practice for anyone, at any time. Death is so permanent.

Aerial coupling was varied by altering the angular relationship between the aerial coil L3, and the anode coil, L2.

In 1940, I was employed for sometime at the old Darwin RAAF temporary transmitting station, near the Parap public school, where several AT1s were in use at the time. During the dry season the performance of these units was superb, but with the onset of the "wet" the high line surges and spikes on the local mains current, caused by severe electrical storms, caused rectifiers to arc over with resultant open circuited filaments.

All stocks of rectifiers were used and it was necessary to substitute oscillator valves by tying the grid and anode together for use as diodes.

The Type AT1 Transmitter. The lower coil is the L1 (grid) coil; the left uppermost coil is the L2 (anode) coil, and the right-hand coil is the aerial coil.

This entailed removing the porcelain beads on the VT30 grid leads and re-covering the grid leads with a rubber EHT insulator made by stripping the conductors out of lengths of EHT cable. This enabled the units and operators to "see the 'wet' out" and the rectifiers were trouble free for the following dry season.

Some of the climatic problems caused by the wet season were odd, to say the least. One morning a swarm of flying ants decided to build their nest on one of the relay units and had shed residence there. They were brushed into a four-gallon kerosene tin and taken outside. (There were over two full tins of them).

It was a very common experience to find flying bugs of all sizes and shapes plotting a path between the plates of the anode condensers of the transmitters. This was all right until the transmitter was on and keying and then — ZAPPPP! Little bugs made little zaps and were gone but B29 size moths and Praying Mantis frequently bridged two adjacent condenser plates and the noise of their demise was indescribable.

You could read the message being sent by the sound of the arc passing through the insects body. In this case, there was a mad dash and the ubiquitous lead-pencil soon flipped the offending insect away. Meanwhile, at the station offices a repeat of the mangled (?) piece of text was necessary.

Reptiles visited occasionally but fortunately, very rarely did they cause any electrical problems.

During the dry season of 1940, new supplies of rectifiers were delivered and all looked rosy for the future. But the writing was on the wall for the old veteran AT1 as newer, more modern and sophisticated transmitters began arriving. With their installation the AT1 took a step back into history and the limbo of obsolete equipment in the RAAF store system after a long and meritorious service life.

INEXPENSIVE DC SUPPLY

Use a common three terminal regulator to float charge a small 12 volt battery.

Syd Cummins ZL1WT
80 Pakura Street, Te Awamutu, NZ

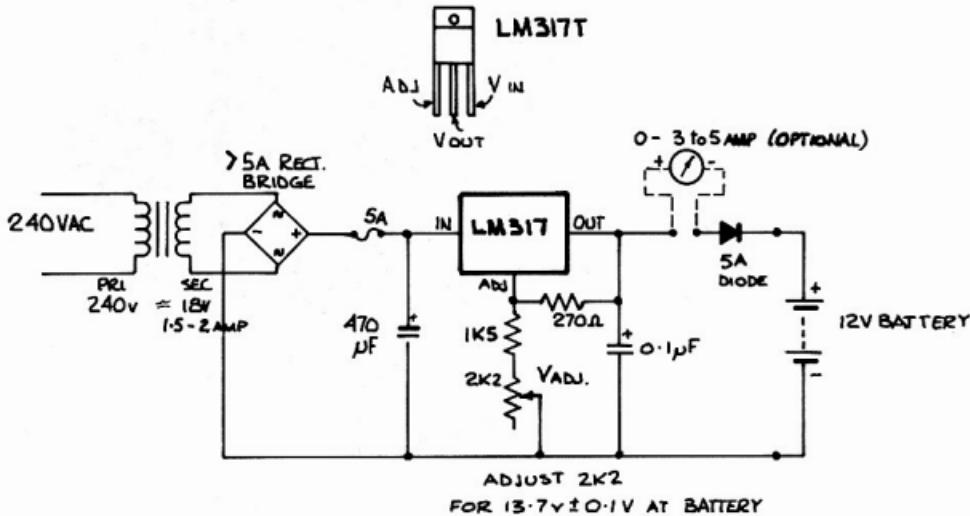


Figure 1.

Suitable high capacity DC supplies for any solid-state rig of reasonable power can be very expensive. An alternative solution to the power supply problem can be found in using a common three terminal regulator to float-charge a small 12 volt battery.

The three terminal regulator based charger operates as a straight charger when the equipment that it powers is not turned on. When the equipment is operating, the charger supplies the equipment standing currents such as the receiver current drain whilst the battery supplies peak loads such as those required during transmit. The charger capacity should therefore be equal to, or greater than, the standing (normally receiver), current drain. If this is not the case, even prolonged receiver-only operation will flatten the battery.

I have developed a fully automatic charger which can charge a low cost, 12 volt motor cycle or gel battery. The preferred charging method for lead acid batteries is constant voltage charging where the current drawn by the battery decreases as it approaches full charge. The modern sealed battery is designed so that it is very difficult to damage it by overcharge (so long as the maximum voltage is not exceeded), so the charger may be left permanently connected to the battery, although continuing to attempt charging of a fully charged battery for days on end is not recommended.

The circuitry is simplicity itself. It uses an LM317 fully protected three terminal regulator

which can supply a maximum charge of 1.5 amps (with suitable heat-sink). A couple of optional extras are the ammeter and the series diode in the output. The ammeter is useful in indicating the state of charge of the battery. The diode allows the charger to be turned off whilst the battery is still connected, by stopping any discharge paths back through the charger.

ZL1GM has one of these basic units in operation and claims it works perfectly.

For contest work, a larger battery may be needed to handle the possibly heavier transmit duty cycle.

In addition to its other advantages, the battery connected across the supply provides effective over-voltage protection if the regulator short circuits. The results of a failure should only be a blown fuse.

COMIC BOOK INTRODUCES AMATEUR RADIO

A comic book introducing amateur radio to the 9-15 age group is being published by Archie Comics. One half of the cost of publication is being paid by the amateur radio industry, the other half by the APRL.

The book will be 32 pages, with 24-26 pages occupying the story, the remainder will be used for an amateur radio crossword puzzle, a quiz based on the facts of the story, a glossary of terms and other fun activities.

Condensed from The ARRL Letter, June 8, 1986

PRIVACY ACT

On May 14, The Electronics Communications Act of 1986, bill was approved unanimously by the US House of Representatives Subcommittee.

The Bill proposes a new definition for the interception of radio and electronic communications — "interception of the transmission of the content" — which means that mere reception of a protected communication would be a crime.

A penalty of up to one year in jail, and up to a \$10,000 fine, would be imposed for intercepting certain transmissions in the shortwave band — namely, handful of remote broadcast pickup stations operating around 26 MHz. (Ship-to-Shore radio telephone conversations may be similarly protected, although this has not yet been clarified. Also protected would be any signal transmitted using modulation techniques whose essential parameters have been withheld from the public with the intention of preserving the privacy of such communications.) That includes scrambled and encrypted transmissions, and may include radio-teletype using bit-inversion codes as well.

Scanner owners monitoring the VHF and UHF bands will find there are penalties for tuning in the remote broadcast pickup stations around 153, 161, 450 and 455 MHz; radio common carriers around 152, 158 and 454 MHz (traditional carphones); anything scrambled or encrypted; and any FM sub-carrier service.

Abridged from The ARRL Letter May 23, 1986.

New IC-R7000



Introducing a Professional Scanning Receiver at an Affordable Price.

25-1000 MHz PLUS!

ICOM announce a scanning receiver that offers professional performance with IC-R7000 advanced technology - 25-1000MHz coverage, multi-mode operation and a sophisticated scanning and recall system. IC-R7000 covers aircraft, marine, business, FM/AM broadcast, amateur radio, emergency services, government and television bands. **ICOM IC-R7000 has many outstanding features.**

- **99 MEMORIES:** You can store up to 99 of your favourite frequencies for instant recall. Memory channels can be called up by simply pressing the memory channel knob or direct through the keyboard.
- **KEYBOARD:** Tuning can be quickly achieved by selecting precise frequencies directly through the

IC-R7000 keyboard or by turning the main tuning knob.

- **SCANNING:** Instant access is provided to commonly used frequencies through the scanning system. The Auto-M switch enables signal frequencies to be memorized while the IC-R7000 is in the scanning mode. Frequencies that were in use can be recalled at the operator's convenience. An optional voice synthesizer automatically announces the scanned signal frequency to ease problems with logging.
- **MULTI MODE:** Push button selection enables FM wide/FM narrow/AM/SSB upper and lower modes to be received.
- **6 TUNING SPEEDS:** 0.1, 1.0, 5, 10, 12.5 and 25-kHz through knob selection.

frequency coverage
(no additional module required
for coverage to approx. 2.0 GHz.)

- **ADVANCED TECHNOLOGY CONSTRUCTION:** The IC-R7000 has dual colour fluorescent display with memory channel readout and dimmer switch.

Dial lock, noise blanker, combined S-meter and centre metre. Optional RC-12 infra red remote control operation. All the above professional features are produced in a convenient, compact unit of size:

Height 282 mm
Width 286 mm
Depth 276 mm

- Specifications guaranteed from 25-1000MHz and 1260-1300MHz. No additional module is required for coverage to approximately 2000MHz. No coverage is available from 1000-1025MHz.

Please send me details on:

IC-R7000 ICOM's full range of communications equipment.

Senders details:

NAME _____

ADDRESS _____

ICOM 3355

PHONE:

(BUSINESS)

(HOME)

POST TO: ICOM, 7 DUKE STREET, WINDSOR, VICTORIA, 3181. PH: (03) 529 7582.

All stated specifications are approximate and subject to change without notice or obligation. ICOM customers should be aware of equipment not purchased at authorized ICOM Australia Agents. This equipment is not covered by our parts and labour warranty.

 **ICOM**
The Frequency of Ideas.

ANTENNA ARRAYS

Part I — Theory and Equations

Paul McMahon VK3DIP

47 Park Avenue, Wattle Glen, Vic. 3350

Antennas are undoubtedly an interesting area for experimentation in amateur radio. Here we have a theoretical look at different antennas.

Antennas have always been one of the most interesting areas for experimentation in amateur radio. Few amateurs however, use a theoretical basis for their investigations, preferring instead to use the *let's build it and see* approach. Whilst this approach is equally valid, it does take quite some time and there is no guarantee that it will produce results. In fact, since the wide dissemination of the NBS Yagi designs, most construction has been simply the scaling of these designs to new frequencies. The prevailing feeling seems to be that — *all the work on antennas has been done, so it's no use doing any more, or even if there are new forms to try you require a PhD to work them out.*

This series of articles is an attempt to change this outlook, and show that there is plenty of room yet for valuable contributions to be made by amateurs. To do this, a basic computer program will be developed which will be capable of running on most home computers. Further, the underlying Equations, etc on which this program is based will also be given.

The features of this program are:

- Directive Gain Figures
- Pattern Plots
- Input Impedances
- Element Currents
- Front to Back Ratio

It will provide these for any two dimensional array of dipoles, with any or all elements driven. As such, it is usable on normal Yagis; Stacked Yagis; Driven Arrays and a large number of other configurations which do not have names.

It must however always be kept in mind that the program uses a theoretical approach and as such gives theoretical answers. The real world is much more complex than the simple models that will be presented here and as such, output from the program should be treated with care. Further comments on its accuracy and application will be given later.

THE CO-ORDINATE SYSTEM

Before going into the depths of how to accomplish the above, a few basics must be established. For most of these is the co-ordinate system, ie how we can mathematically describe where our elements are in space.

The system to be used here is shown in Figure 1. As can be seen there is an X, Y and Z axis giving full three-dimensional coverage. It is rare, however, that this is the axis used in calculations. Quite a deal of simplification can be made if the other axis shown are used, ie the Theta, Phi and R. This system may be new to many amateurs, but a little thought should have most happy with its use. As an example, an element is shown with its centre at $X=1$, $Y=1$, $Z=1$, this element could also be seen to be at Theta=45 degrees, Phi=45 degrees, and R=1. It is usual to have the major lobe, or direction of greatest gain at Theta=0 degrees or directly along the Z axis.

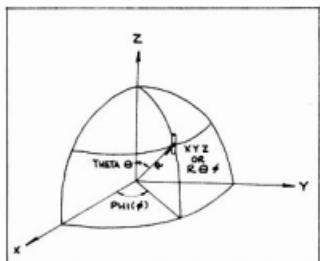


Figure 1 — Co-ordinate system for antenna analysis.

COMPLEX NUMBERS

All amateurs should be aware of the terms resistance, reactance and impedance. They may not, however, be used to thinking of them in terms of complex numbers. For the sake of usage here, a complex number can be simply thought of as one composed of two other ordinary numbers, the *real* and the *imaginary* part. In the impedance case, impedance is really a complex number formed of the real, or resistive part and the imaginary, or reactive part. No further knowledge of complex numbers will be needed to operate the program or to basically understand the rest of the explanations which follow. However, it will be necessary to recognise complex numbers when they come up and realise that the common mathematics which applies to real numbers may not apply to complex numbers. Throughout the following complex numbers will be represented by one or the other of two possible forms:

$$3a. F(\theta, \phi) = K * (\cos(90 * \sin(\theta) * \cos(\phi)) / \sqrt{1 - (\sin(\theta) * \cos(\phi))^2})$$
$$3b. W(\theta, \phi) = K * 20 * \log_{10}(F(\theta, \phi))$$

Form 1 — Real + J Imaginary; eg 10 + J5

or

Form 2 — Magnitude < Angle; eg 11.18 < 26.57 degrees.

The relationship between these forms is shown in Figure 2. Both represent the same

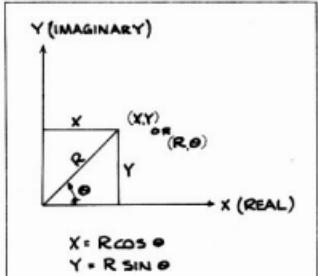


Figure 2 — Relationship between polar and rectangular complex number.

complex number but the different forms are more suitable in some circumstances than others so both will be used here at different times.

The quantities that will be expressed here as complex are, impedance, current and voltage.

ELEMENT RADIATION PATTERNS

Most amateurs have been exposed to the concept of a pattern of a dipole antenna as shown in Figure 3. But few really know what this means or can represent this mathematically. Conventional amateur literature often only gives the pattern in two planes, the so-called E and H plane, ignoring all the area between. For our purposes, the E plane is the one that is parallel to the dipole element and the H plane is the one perpendicular to the element.

Patterns can be represented in a number of ways, the two most common are linear proportional to the radiated field strength in Volts/Metre at some arbitrary distance, or logarithmically proportional to the radiated power in Watts/Metre squared.

For a simple half-wave dipole in free space, formulas often given for E and H plane patterns are Equations 1a and 1b for the E plane and 2a and 2b for the H plane. In both cases the dipole is in our co-ordinated system situated at X,Y,Z = 0 in line with the Z axis.

- 1a. $F(\theta) = K * \cos(90 * \cos(\theta)) / \sin(\theta)$
- 1b. $W(\theta) = K * 20 * \log_{10}(F(\theta))$
- 2a. $F(\phi) = K$
- 2b. $W(\phi) = K * 20 * \log_{10}(F(\phi))$

However, these Equations are not sufficient for our purposes here, to find the true directive gain later it is necessary to have an expression in terms of both Theta and Phi. This more complex Equation is given in Equation 3a and b:

At theta equals 90 degrees Equation 3a reduces to Equation 2a. At Phi equals zero Equation 3a reduces to Equation 1a.

It will be this pattern which will be assumed for all later calculations.

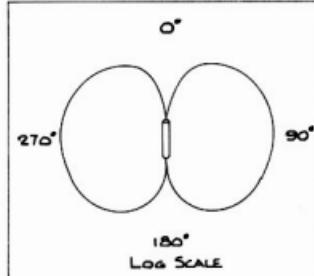


Figure 3 — Typical E plane half-wave dipole pattern.

ARRAYS

Figure 4 shows a basic one dimensional array composed of two elements, one and two. In this case, for simplicity, isotropic radiators will be used, ie each element radiates equally well in all directions. If we imagine that we wish to determine the relative field intensity at some distant point P which is so far away that Theta 1 is approximately equal to Theta 2. Then the field in this direction can be expressed in terms of the complex element currents and phase differences, and the spacing of the elements. In general then for this situation Equation 4 gives the field expression for this array.

For more than two elements we get Equation 5, which is just the sum of a number of Equation 4s from element 1 to N.

$$4. F(\theta) = K * \sum_{n=1}^N I_n < A_n < A_2 + (2 * \pi / \lambda) * S_n * \cos(\theta)$$

$$5. F(\theta) = K * \sum_{n=1}^N I_n < A_n + (2 * \pi / \lambda) * S_n * \cos(\theta)$$

This Equation can be extended to apply to Figure 5, where a two dimensional array is used giving Equation 6.

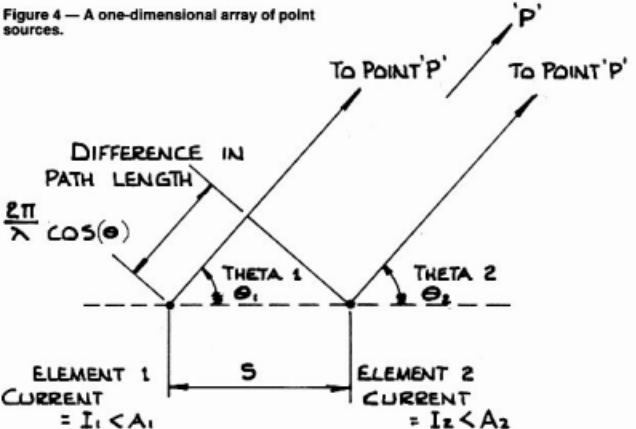
$$6. F(\theta, \phi) = K * \sum_{n=1}^N I_n < A_n + (2 * \pi / \lambda) * S_n * \cos(\theta - B_n)$$

Once again this only gives the array pattern in the Theta plane and we require both Theta and Phi variations. It can be shown that in this case for the two dimensional array in Figure 5, the field pattern is given by Equation 7.

$$7. F(\theta, \phi) = K * \sum_{n=1}^N I_n < A_n + (2 * \pi / \lambda) * S_n * [\sin(B_n) * \sin(\theta) * \sin(\phi) + \cos(B_n) * \cos(\theta)]$$

Further, if the array is composed of other than isotropic elements then the principle of pattern multiplication states that the total pattern can be found by multiplying the Element Pattern by the Array Pattern for isotropic elements which has the special name of the Array Factor. So the total pattern can be found by multiplying Equation 3a by Equation 7.

Figure 4 — A one-dimensional array of point sources.



DIRECTIVITY AND GAIN

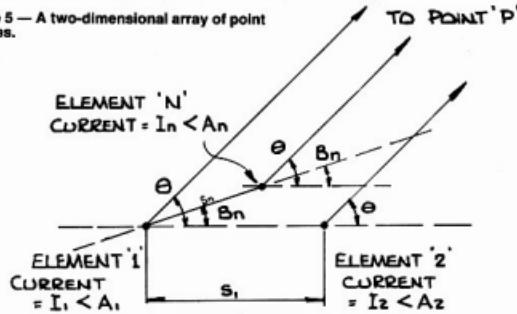
Directivity is defined as being the ratio of the maximum radiation intensity to the average radiation intensity (Equation 8).

$$8. D = U \text{ max} / U \text{ average}$$

It can be shown (see Reference 1) that this can also be expressed as Equation 9.

$$9. D = 4 * \pi * F^2(\theta, \phi) * \max(|F(\theta, \phi) * \sin(\theta)|^2 d\theta d\phi)$$

Figure 5 — A two-dimensional array of point sources.



etc, but all assume that we know these currents. In fact, it is not as simple as that, or real life antenna elements would never work. In real life antenna elements do not act in isolation. Currents in one element set up currents in other elements via mutual effects. (For further information see Reference 2). To truly calculate patterns, etc this effect must be allowed for. One way of doing this is described in Reference 3.

In summary, this method uses matrix methods to solve the complex multi-element form of Equation 11.

$$11. [Z] [X][I] = [V]$$

This then can be solved for I, but only if we know V and Z. Luckily enough, we can, in most cases, determine V and a number of methods have been proposed to calculate Z (see References 1, 2, 3, 4 and 5). The method chosen here is the so called integral equation approach and is explained best in References 1 and 5.

CONCLUSION

In the next part we will take the above information and show how it can be implemented in terms of a basic computer program.

References:

1. J.D. Kraus Antennas — McGraw Hill New York 1950.
2. F. Gehrke Vertical Phased Arrays, Ham Radio July 1983.
3. J.L. Lawson Yagi Antenna Design, Ham Radio January 1980.
4. W.L. Stutzman & G.A. Thiele Antenna Theory & Design — John Wiley & Sons New York 1981.
5. C.A. Balanis Antenna Theory — Harper & Row New York 1982.

EQUATION KEY

F is the Field Strength in Volts/Metre.
 θ is the angle Theta as shown in the Figures.
 ϕ is a constant expression which does not effect the final outcome of the program.
 W is the Field Strength (Power Density) in Watts/Metre².
 I_n is the angle Phi as shown in the Figures.
 A_n is the Magnitude of the current in the nth element as shown in the diagram.
 ϕ_n is the Phase or Angle of the current in the nth element as shown in the diagram.
 λ is the wave-length in metres at the frequency of interest.
 S is the spacing in metres between the reference element and the nth element.
 B_n is the spacing in Degrees from the reference plane and the nth element, as shown in the diagram.
 D is the Directivity.
 U is similar to W but not necessarily in D .
 $\int d\phi d\theta$ is the double surface integral.
 $[Z]$, $[I]$, $[V]$, are the complex matrix values of Impedance, Current and Voltage respectively.

Field Days Can Be Fun

... and frustrating too! Reflections on preparation and operating in the 1986 John Moyle Memorial National Field Day, with data on some effective antennas for portable use. Nostalgic reminiscences of some earlier field days recall an era when portable meant anything with two handles which could be manhandled on to a Field Day site.

John Hampel VK5SJ
16 Mitchell Street, Glengowrie, SA. 5044



It all began when my son-in-law David VK5ADO, watched me delving into his Swan 240 to coax the receiver section back to life.

David was checking on up-coming contest dates and suggested the John Moyle event ... after all, field days are fun (he said).

I held a different view based on memories of two earlier field days in 1950 and 1954.

SOME NOSTALGIA

The VK5 Northern Net organised a field day at Kulpara on October 29, 1950. As I was a Net Controller for that group, this would be an ideal way to meet with the voices on the other side of the microphone. An ex-disposals 108 was modified for the occasion. Three quarters of a watt into a random wire should work someone! (It proved to be plenty of power to win a prize (pair of 807s) for the best DX on the day).

Early arrival at the venue cornered the best antenna supports in the form of two basket-ball goal-posts. As the other stations arrived, car-mounted whips and ex-Army tank whips sprang up around us. Ken VK5AL, found a tree stump at the opposite end of the oval; to support a vertical. As 9 am approached, we awaited the WIA Sunday Morning Broadcast from Adelaide, by Reg VK5RR. The 40 metre band was dead. Max VK5GF was complaining of similar conditions on six metres.

After an hour of deadly silence, Brian VK5CO, remarked that he had heard on 20 metres the previous night that high sun spot disturbance was expected for a couple of days. Les VK5UX, the organiser of the whole day, told the group the bad news, but hoped we would still make it an enjoyable day.

VK5AL strode off across the oval, called me for a 5 x 9 signal both ways in our logs to win the DX Trophy before packing up to join in a cricket match. Austin VK5WO, won a prize for receiving 28 WPM and Clarrie VK5KL, won a prize for a smart home-brew six metre converter.

As a field day, it was a sun-spot washout. As a social outing, it was rated as a roaring success as so many had the opportunity to meet the regular check-ins on the Northern Net. It also provided some copy for my columns as VK5BJ, Amateur Radio Editor of the then A.G. Hull's *Australasian Radio World*, for December 1950, which was its last issue. The following month there was a change of publisher and title to *Australian Radio and Electronics*, under the ownership of Lay Cricket VK2XC, now VK5GF, of Radio Amateur Old Timers Club (RAOTC) fame.

The following year, the VK5 Division organised Sunday, January 28, to stimulate interest in the WIA National Field Day. There had been little support for these events since activities resumed after WWII and this was calculated to encourage more portable operation.

The site chosen was a long stretch of beach at Taperoo. The area is now the North Haven multi-million dollar housing development and boating marina. In 1951 there wasn't a pole or tree in sight and vehicle access was pretty dicey over the sand dunes.

We all enjoyed meeting fellow amateurs including John VK5AJL, who came over especially for the day. There was some activity by intrepid operators who erected those ever-present tank whips only to see them keel over to semi-verticals or, more often, horizontals in the soft sand.

Again it was a great social outing but the inevitable cricket match won out over radio.

Field day operating was off my log book for a few years when I signed VK2AFW from Broken

Hill. One of my fellow workers at the local radio station was an announcer who was interested in amateur radio and often visited the shack. He saw a reference to the National Field Day for 1954 in *Amateur Radio*. As we sometimes took the rig out to "chop picnics" for a few hours, why not make it a full operation?

This time the site chosen was one we often used in the dry creek bed of Stephen's Creek, east of Broken Hill.

The rig was an ex-US Air Force TCS with generator power supplies from two 17 plate, 12 volt industrial batteries.

The TCS series was a fine rig compared to those old No 11, No 19 and FS6 disposals sets which were heard in profusion after the War. Mine carried the Collins name-plate as contractor to the USAF. Many famous old names of US communications had contributed to its manufacture. The assembly was by Hazeltine Electronics, the meters from Triplett, coils by Hammarlund, the superb tuning condensers were by James Miller, the microphone insert from Turner and the power unit was mainly Dubilier.

Both receiver and transmitter used identical switched crystals (from Billeys) or VFO control, 1625s (12 volt 807s) plate modulated another pair of the same valves at 35 watts AM. The unit I purchased was complete with remote control unit, external speaker and aerial loading coil in new condition for 35 pounds (\$70) and weighed in at 170 pounds (77 kg). Compare that load to be packed into a car with transceivers of today. Portable station operators in those days were a dedicated few.

After a few hours into the Field Day Contest, a storm headed our way followed by rain soon after. We packed as hurriedly as possible with the heavy-weight gear and called-it-a-day. When the local paper arrived next morning, it carried a front page which told how lucky we were to cease operating the previous day. Stephen's Creek had been fed by a cloud-burst further north and floods had raced through our operating location about 10 minutes after we left, filling the local reservoir for the first time in two and a half years.

PLANNING

Thinking about those earlier forays into field days did nothing to raise my enthusiasm for the 1986 John Moyle Memorial Field Day.

However, David kept the subject to the fore until I finally gave in. Yes, we would give it a go. It would provide me the opportunity to try out some antenna ideas which couldn't be fitted into the home GTH block and keep up the activity for Jubilee 150 activity from VK5.

About this time, my sister-in-law bought a property near Clare, 140 km north of Adelaide. From photographs of the farm it looked ideal. Elevation was 250 metres ASL with trees in the right places for a rhombic and long wires. I had to admit I was now warming to the idea a lot more. Arrangements were made to visit the farm about three weeks before the field day weekend. Then the first problem appeared — on that weekend there would be my niece and friends in occupation for horse-riding and the only building, a small bunk-house, which would become the temporary amateur shack wasn't available.

A brother-in-law had a bus converted to a mobile home stored on blocks, somewhere in the Adelaide Hills. Now this sounded even better until a telephone call revealed that it had been moved back to the city only the previous week.

By this time, planning of desirable antennas had been finalised and a new drive to find a site was

important. Many telephone calls produced zero results. I had the distinct feeling that some of these contacts believed the country-side was about to become a mini-Radio Australia, trees would be damaged and, worst of all, TVI would be introduced into an otherwise quiet existence. Retribution would be mine sooner or later, when the inevitable request to "fix our hi-fi" or "look at our television mast-head amplifier" comes around.

Overhearing my lack of success on the telephone, my daughter suggested a farm where she goes horse riding. So, I phone the owner, he has no objections, is even enthusiastic, suggests best site as he works UHF CB from there. Finally he mentions there is a new shed built since the bush fires on Ash Wednesday and it is at the highest point in the Bugle Ranges, Mount Wilson, 125 metres ASL. Would I like to see it tomorrow as he is going down? If it had not been night time I would have been ready to go, right then!

Arrival at the farm brought a pleasant surprise. The shed mentioned the previous night was much larger than expected. Although cluttered with old tractors and implements, it also sported an ideal operating table plus chairs and a folding lounge stored there — a ready made field day shack.

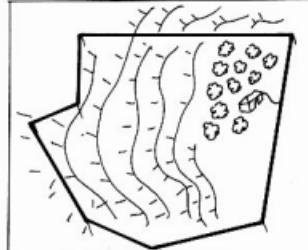
Outside were several gums, devoid of foliage since the bush fires, which would be ideal for supporting our antennas. The land sloped steeply on three sides and visions of a sloping terminated V-beam came to mind.

Our host then came up with an offer to use his generator, powered by an old Ferguson tractor engine. Occasionally it saw duty to pump water from a dam down the hill and "the run will do it good."

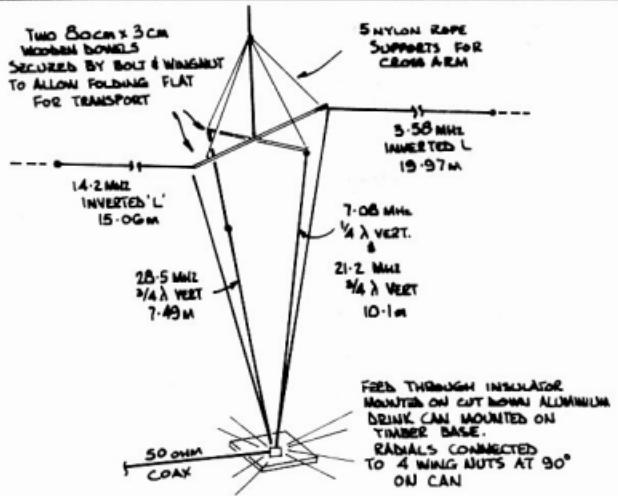
A portable generator had already been arranged. At this point, David's mind was already planning ahead. He had spotted another, smaller shed on a distant hill to the south. The owner confirmed it could also be used over the weekend. This also meant I lost my second operator — VK5AOD would operate from the second site.

The owner left us to look around with a reminder to "close gates" before leaving. Also, something about a mean bull which did not cause any concern then but, I would have good reason to remember later while erecting an antenna.

David became interested in the fence in the area. Apparently it had once served as an electric fence and, as far as our inspection took in, the plastic insulators still appeared sound. Heavy insulated cable dived under gate openings, but it looked too inviting to ignore.



Irregular Shaped Loop. It was approximately 1800 metres long.



Multi-Band Vertical/Inverted L.
Radial Lengths:

3.580 MHz — 20.42 metres
7.080 MHz — 10.35 metres
14.200 MHz — 5.18 metres
21.200 MHz — 3.45 metres
28.500 MHz — 2.56 metres

I had brought a multi-meter to test ground conductivity. This soon revealed that the fence was a continuous loop back to a cut made as a test point opposite the shed. Earlier success with a 7 MHz loop only 70 cm above ground at the home QTH fired the imagination. This one was at least 1200 metres (later checked closer to 1800 metres) and about 150 cm high. It would be fired up on 3.5 MHz for the field day.

Driving home we assessed what was available. David would now use his trusty Swan, plus home-brew transverter for 21 and 28 MHz with a common feed coaxial cable to simple dipoles. The problem would be finding enough three-core cable to use with the generators.

PREPARATION

Over the next three days of scrapping, we had amassed a motley collection of extension cords in varying lengths with some in dubious condition. They would all have to be checked, a vital safety exercise which took a whole day. A concern was to find that two of the cables, with moulded plugs and sockets, had been manufactured with transposed active and neutral, whilst another was made as a two-core cable with no earth and no indication that perhaps it was for use with double insulated appliances. In all, after modification of the faulty cables, a total of 310 metres was available.

Although the basic antenna types had been decided, the construction and erection now had to be reconsidered since I would be going it alone as a single operator station. Clearly the antennas would need to be made up in a manner allowing quick, simple rigging on-site.

The front lawn became a source of wonder for neighbours and passers-by. Old transformers and

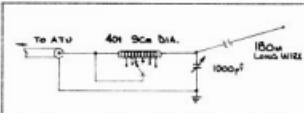
black and white television deflection coils were unwound plus discarded house wiring (kindly donated by Ted VK5PEB) were all pressed into service, measured and packed. Sets of radials were individually wound on coffee jars and marked for reference. When these were assembled at the field day it was a simple matter to unwind each radial and the jar held the wire in place. Two cartons of radials were packed so that there would be at least four for each HF band.



The main body of the multi-band vertical sloped down 45 degrees from the tree to the feed-point. The inverted L sections for 3.5 and 14 MHz extended out to the sides.

Next a multi-band wire vertical-cum-inverted-L was assembled and coiled up carefully for transport. Each antenna wire and feedline were colour-coded with insulation tapes to avoid confusion later. This proved to be a time-saver when the

antennas were going up and various feedlines brought into the operating position.



Long Wire — All Bands.

Circuit of the Auxiliary Tuner used with the ATU for the Long Wire and Horizontal Fence Loop Antennas.

Obviously, to utilise the various antennas it would be necessary to switch between them and without confusion under contest conditions. A board to select feeders and inputs to the ATU was made up so that the status of switches could be determined at a glance. Some manila card was added and ruled up to note tuner settings.

A bow and arrow had been promised by Bob VK5ZAL. While collecting this sky-hook tool, he mentioned some bits and pieces that were to be thrown out. A lucky coincidence that among the items were some porcelain feed-through insulators and a GR Laboratory Standard 1000 pF variable capacitor. Later that day, the insulators were installed on the switchboard for long wire selection. The capacitor and a Collins loading coil (from that TCS of 1954) were bread-boarded into a long wire tuner.

DISASTER STRIKES

It was now Wednesday. Every item had by now been checked at least twice. All was well. At least until that night. I was hearing the end of a Jubilee 150 Net on 21 MHz when the drive on my TS-520 became erratic. The next three hours of trouble-shooting produced no results and worse, the rig was inoperable on all bands.

An early start next morning saw the rig working on the two low bands for a short while. After about 30 minutes, drive disappeared again so that by mid-morning, it was clearly a case of no rig for the field day.

(The following week the fault was traced to overheating during long operation sessions. The trouble has not reappeared since providing better air flow around the transceiver. The heating had caused the driver-stage coil formers to expand slightly allowing the cores to move. They were locked in position and realigned after threading a strand of hair around each core — an old trick used by servicemen who would use a cotton thread to lock sloppy IFs on old broadcast sets).

Some phoning produced a happier result after the third call. Ken VK5CQW, had a spare IC-751 which he kindly delivered to my QTH a couple of hours later. Our field day hopes had been reinstated.

How all the gear fitted into one car was an exercise in packing. The boot was persuaded to close and the partly assembled 21 MHz beam tubes stuck out the window. The generator and jerry cans of fuel had gone ahead with the farm owner. We reflected on this decision as we squeezed into the remaining space and headed south.

SETTING UP

Arrival at the farm on Friday afternoon indicated a change in scenery since the first visit. Cattle has used the top paddock that day and left calling-cards all around the shed. Transferring the gear from the car was carried out with extra care. David took the car and headed down the range.

Previous arrangements were to check into the Jubilee 150 Net that night, so I concentrated on erecting a 3.5 MHz wire and connecting up the fence loop. No rainfall in the area for over three months meant the soil was dry and packed hard. After draining a near empty storage tank, plus sacrificing our drinking water supplies, an earth stake was persuaded into the ground. Quarter wave coupling radials for each band were also connected to the ATU.

These radials proved useful when the loop or long wire were used. Without them, the tuner would only bring the SWR down to 2:1 at best

(over 3.5 on 14 MHz with the long wire). With the radials in circuit, the SWR was barely readable on all bands.

By 0915 UTC, David returned taking things at a more leisurely pace. He would wait until Saturday morning to put up dipoles — after all, I had the bow and arrow. We had overlooked this in our planning and arrangements were made for the next day.

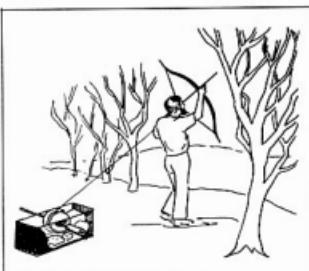
Listening on 3.5 MHz, we were impressed by the healthy sound of the band. Used to an S7 noise level most times at home, this was luxury. Noise was almost non-existent, particularly on the loop. This was a feature of the loop I had used before.

Using the inverted dipole, I called Gordon VK5KGS, and we were, as expected, S9 back in Adelaide. A change to the loop was dramatic to say the least. As the IC-751 had a variable power output control, I cut back to 10 watts using a fairly accurate power meter for the test. Other stations waiting for the J150 Net gave us reports of still over S9. The loading was reduced, processor taken out of circuit and the microphone gain wound back until finally the indicated power was 600 mW. We were still S9 in Adelaide and Port Augusta. A VK4, north of Townsville called in to report that the signal had dropped from S9 to S7 since the start of the tests.

The quiet location and antenna efficiency made working on the Net a most pleasurable evening. Stations in VK4, VK6, and ZL that I had often heard before at home were now 4-5 S-points up. All sounded well for some interesting operation in the contest the next night. The most important consideration now was an early night as I planned a brisk start on erecting antennas on Saturday morning.

A 6 am start did not impress David, but there was a lot still to be done. I left him to cook our breakfast while I pushed on. Lines to support a vertical and a two element sloper were soon in place with the aid of the bow and arrow. After some unsuccessful attempts when the fishing line snagged on tufts of dry grass, a feed for the line was fashioned with a screw-driver and cardboard carton. Rocks held the crude, but effective device in place.

The all-bander was intended as a true vertical. The coaxial cable now had to reach the rig through the only access of the shed door which meant the feed point was away from the only



Anti-snag set-up for playing out the fishing line using a screw-driver, cardboard carton and rocks to hold it in position. If a second person is available, a 'casting reel' used by anglers could be used. This is a reel open on one side with a flared edge so that it may be held in the hand, and angled in the direction of shooting the line. Other methods of putting a light line over trees for portable antennas are a catapult (should be used with caution and plenty of practice beforehand) or, the simplest expedient of a smooth rock of size equal to the operators throwing ability! Avoid items which may (nay — Murphy's Law says WILL) be caught in the twigs and foliage.

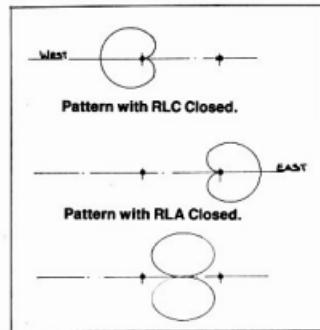
convenient tree. Text books put forward various values of feed point impedance for both top and bottom fed verticals and slopers. Noise bridge tests indicate a figure of 43 ohms at each of the designed frequencies.

The simplicity and efficiency of this antenna command its use for any home station where a modest number of radials are possible. Multi-band 300 ohm ribbon should be inductively loaded short radials would be an alternative for consideration.

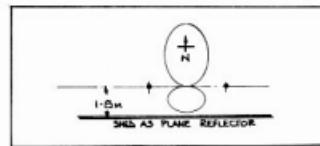
The 14 MHz sloper beam proved to be a valuable inclusion with modest gain and impressive front-to-back ratio for VK2-VK6. When activity around VK was slow the sloper provided some interesting DX. Although only worth two

contest points per contact, working DX at this location was a breeze.

A 21 MHz vertical beam had been planned on the basis that it would be installed at ground level. Besides switching patterns from the operating position, it was designed to be set up a quarter wave in front of the shed. This would provide a large reflector with the idea of suppressing, or at least reducing, the rear lobe of the figure-eight pattern when feeding the elements in phase.



Normal Figure-eight Pattern when phased array is fed in phase (RLB closed).

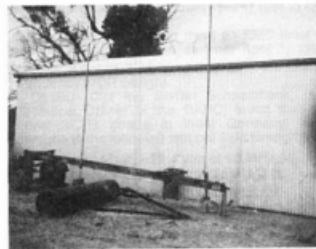


Shed as Plane Reflector.

Approximate pattern with RLB closed and beam spaced $\frac{1}{4}\lambda$ in front of reflector.

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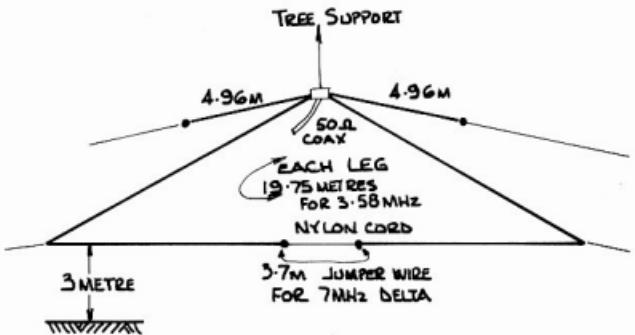
The 21 MHz vertical two-element beam using the shed as a reflector when in phase operation was relay switched.

The rocky ground at the point intended stopped any thoughts of getting support stakes in position. A two wheel jinker cart when bush fires had destroyed the tray top was wheeled into position alongside the shed. The vertical elements were lashed and U-bolted to this frame. Four radials per element were sloped down and weighted with rocks. Feed point impedance was around 30 ohms which the ATU handled with ease.

Listening tests indicated the beam worked east-west with some gain and excellent front-to-back ratio. However, when the figure-eight pattern was selected, results on Asian signals weren't as

Inverted Dipoles 3.5/14 MHz — 7 MHz Deltas. This inverted dipole cut for 3.580 MHz plus jumper wire to convert to a Delta loop on 7.090 MHz is a copy of the same configuration used at the home QTH. Another dipole running roughly at right angles was added for 14.200 MHz. A common 50 ohm coaxial cable feed was

used. As bare wire was used, the formula $141/l$ applies for dipole length in metres. If covered wire had been used, as in the home station antenna, the formula $138/l$ would apply. The height above ground is not ideal but a compromise to allow reaching the dipole ends to clip on the 7 MHz jumper.



Two-Element Sloper Beam — 14 MHz
 The dimensions shown resonated at 14.190 MHz using the formula $143/f$, which is a good starting point for sloper calculation. The ends of the dipole were secured by nylon fishing line through soldered loops so there is no insulator end effect with the dimensions shown. A bell-wire twin-line switched the relay in a small plastic container hung from the tree. The twin-line use refers to '14.036' auto-cable, NOT the

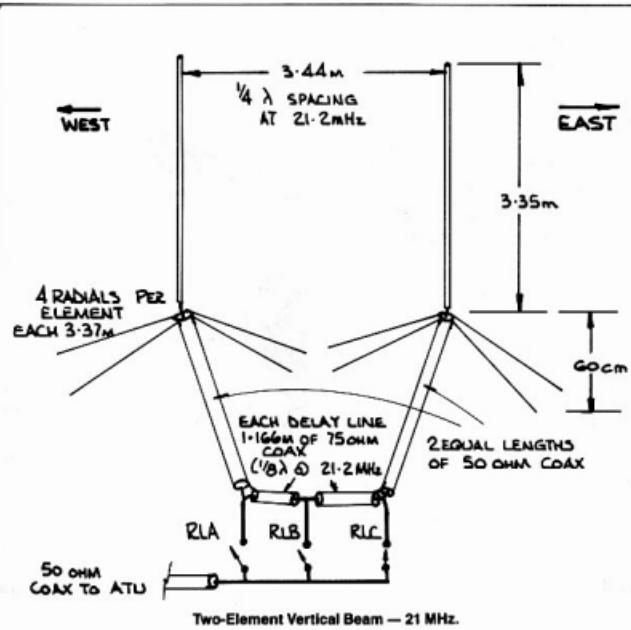
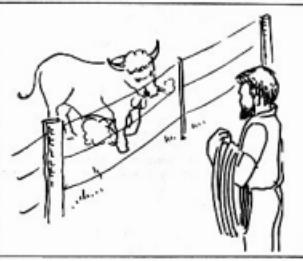
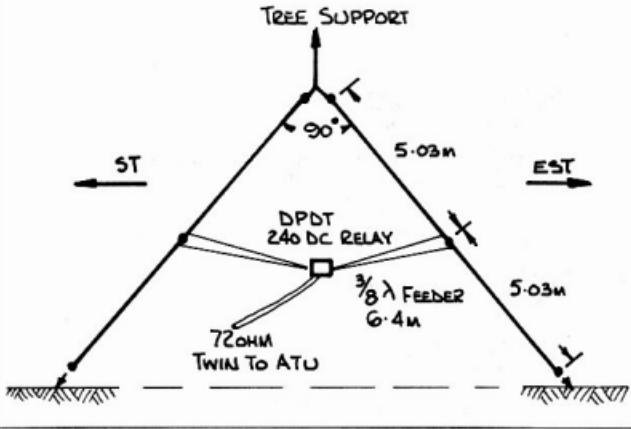
usual figure-eight lighting twin flexible. A dip-oscillator put the velocity factor at 0.81 so the $\frac{3}{8}\lambda$ feeders should be accurately checked. With no voltage applied to the relay, the beam fired east. Application of 24 volts DC selects the other dipole with the unused $\frac{3}{8}\lambda$ in each case acting as inductive loading for a reflector element.

expected. The frame carrying the beam was moved closer to the shed. Results sounded better. Finally the elements were positioned 1.8 metres in front of the reflector (close to an eighth-wave spacing). Up came the signals from the north and the east-west pattern appeared to be unchanged.

Tests with Ron VK5ON and Graham VK5KG in Adelaide, confirmed the beam was working well. During the contest, JA, HI and YC stations answered "CQ Contest" calls, so it was useful to be able to switch patterns and pick out the weak VK2 and VK4 mobiles for contest points.

After a quick lunch, I tackled the remaining planned antenna. This would be a sloping terminated V-beam (sometimes referred to as a 'Cove' array). The V would slope down from a tree at about 11 metres to bundles of carbon resistors made up to measure about 600 ohms connected to earth rods. This antenna was to provide an approximate 70 degrees included angle for VK4-VK8. One leg was reeled out to the north. This was approximately 12 gauge wire recovered from a 240/110 volt step-down transformer. The other leg would go across an adjacent paddock.

At this point I became aware of the bull which wasn't supposed to be in that area over the weekend. Any approach to the fence brought a 'Oh no you don't' attitude from him. This was his domain and not to be used for antenna experiments. Considering the remaining time left, a convenient solution was to erect the one long



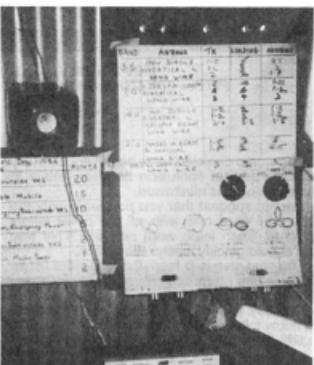
wire in four trees, roughly in a straight line which lined up on about 310 degrees. Not according to plan, but it would have to do. This long wire proved to be useful as the only radiator to work into Adelaide on 28 MHz. Considering the bearing, it was no surprise that it was effective with European DX on 14 MHz.

Only 45 minutes to starting time at 0700 UTC. David came back for sandwiches and coffee, pleased with his afternoon working DX on his favourite 14 MHz band. Both generators were performing faultlessly. Mine made a thumping din downhill by the dam and it would go on to echo right through the night. I hoped it would keep that ♀ KANGAROO bull awake!

CONTESTING

Operating went along at a brisk pace. A dupe sheet divided for the three and six hour rules had been set up on a picnic table next to the operating position. This was valuable as there were a high number of calls from stations for repeat contacts even under one hour. They appeared to have no recording to avoid dups and delayed things at times debating the time of the last log entry. Two dups did slip by my guard as fatigue set in along the way.

At 1630 UTC, David sounded ready to give-in when we worked. Besides being tired, my signals were causing QRN havoc at his site. I must have nodded off shortly after, as indicated by an indecipherable squiggle on the log sheet for 1640 UTC. It would be 1928 UTC before the next contact. A burst of static proved a most effective alarm clock. A couple of VK4s were mobile around



A Switch-board was used to select antennas and feed lines. 24 volts DC was used to control remote relays for the 14 MHz slopers and 21 MHz vertical beams. Tune up references for the ATU were recorded for quick band changes.



The mobile microphone was mounted on a tubing boom held in place by the ATU. Hands-free operation is an asset for contesting. Antenna selection board is on the wall above the rig.

VK2. They were pleasantly surprised to receive a call and after a short chat about the field day, exchanged contest numbers.

David had been up early hoping to see Halley's Comet and heard "the racket overloading his receiver" as he unkindly described my signal. A short while after he came up to cook breakfast while still keeping an eye on the eastern sky. I was more interested in operating than the Comet, so it was back to the rig, with only a short break for the WIA Broadcast, until the last contact at 0658 UTC.

Highlights of the weekend were:

- the low noise level on all bands
- Dodi HABNF, calling on Saturday night on 14 MHz for a contact for his Jubilee 150 Award
- a long path 5 x 7 both ways with Maurice FT8VA, for a new country on 14 MHz
- working many friends made during J150
- Nets who were giving out contest numbers as home stations to provide contest activity
- JAs who couldn't be part of it
- working stations that would not have been possible at home, even allowing for the excellent band conditions over the field day weekend.

Although two metre equipment was taken along in case of an emergency and VHF multipliers would have been handy, the final result of the 352 HF contacts in 24 hours was satisfying enough.

?

?

?

HOW ABOUT NEXT YEAR?

I have been asked this question many times. After all, the antennas have been stored for some future use. Perhaps next time will be with our local radio club when the extra help erecting antennas would be useful.

However, on one point I am sure. A serious approach to planning and multi-antenna installation is only worthwhile if the 24 hour section is entered. A much simpler set-up would be used if competing for only six hours!

BEAM ROTATORS

OSP

It appears many amateurs have trouble with the rotor of the CDE Ham II failing to lock.

Here is a simple and cheap method of rectifying the fault.

Listening around the bands, it appears that I am not the only one who has had trouble with the rotor of the CDE Ham II Beam Rotator failing to "lock" due to partial stripping of the teeth inside the lower casting (brake housing) and wear on the brake wedge.

As the cost of importing a new casting was prohibitive, over \$100, I devised a simple and very cheap method of rectifying the fault.

First, separate the upper and lower castings (there is no need to disconnect the control cables) and drill 12 quarter inch (6 mm) holes, every 30 degrees around the perimeter of the bottom housing, so that the holes appear in the centre of the worn teeth, vertically.

Next, insert quarter inch (6mm) bolts, approximately one inch (25mm) long, with the

head of the bolts inside, and lock into place with nuts on the outside.

The final step is to grind approximately an eighth of an inch (3 mm) off the brake wedge so that it clears the bolt heads when retracted, and re-assemble.

Taking the width of the bolt heads into account, whether they be square or hexagon, the beam will now be only able to travel about 20 degrees when locked. This modification has proved itself in gale-force winds at my QTH. It is interesting to note that later models have a square tooth design with matching square edge wedge.

The hardest part of this operation is taking the rotor down from the mast, and re-installing it...

WATCHDOG TIMERS

"I have had a receiver sitting on 14.103 MHz for over an hour tonight copying solid continuous 'fill' characters from some poor packeteer who has his keying line stuck down. This has also been observed on several occasions on our local Balto/Wash two metre LAN frequencies. In addition to being very hard on your radio (few radios are designed for continuous commercial service and tend to get quite warm after a few minutes of such service, and after an hour tend to develop a lot of 'krispy kritters' inside!) this is also very illegal. I would advise packeteers to check to make

certain your watchdog timer is functioning. TNC 2 owners should make certain that JMP4 is not installed.

"I offer even a stronger concern for users of Kantronics KPC TNCs which apparently do not have any fail-safe watchdog timer included. I would advise all KPC users to build a watchdog and install it as soon-as-practical. Operating without a watchdog timer is like playing Russian Roulette."

W3IIW writing in *Gateway*, Vol 2, No 20, The ARRL Packet Radio Newsletter.

PROPOSED EMC TECHNICAL STANDARDS FOR VCRs

The VCR performance shall not be affected if operated in a Lecher-line test-cell over the unwanted signal frequency range of 150 kHz to 150 MHz at 130 dB (uV/m) = 3 V/m field strength.

Television sets, which are operated with the VCRs, have already to meet this EMC standard. This standard will apply from Autumn (Europe) 1986.

Exceptions — Until March 31, 1987 the field strength of 115 dB (uV/m) applies for the range 2.500-4.250 MHz and 6.250-7.500 MHz. The field strength will be increased from April 1, 1987 to 120 dB (uV/m) = 1 V/m.

New VCRs will have to meet an EMC level of 130 dB (uV/m) = 3 V/m as from April 1, 1987 (except 3.5 and 7 MHz). 3.5 MHz is the critical frequency (VCR design).

DL1BU (Dipl Ing Gunter Schwarzebeck, Hon Technical Officer of the DARC) found that the latest VCRs (made in West Germany) were immune to the following test cell field strengths:

147 dB (uV/m) = 22.4 V/m at 1.8 MHz
136 dB (uV/m) = 6.3 V/m at 3.5 MHz
146 dB (uV/m) = 28.2 V/m at 7.0 MHz
149 > 150 (uV/m) = 30 V/m at 10.1 MHz

This shows what industry can do by careful design when requested by law.

The work of establishing standards was carried out by the DKE (West German Electro-technical Commission), the FTZ (equivalent to DCC in VK) and the DARC (Deutsche Amateur Radio Club). Written by Dr Ing Gerhard Bleicher DL8TJ and translated from CQ-DL magazine, April 1985 by Hans Ruckert VK2AOU, for Amateur Radio.

IF ONLY THEY COULD SEE US NOW!

▽ Crystal control is highly desirable for stability, but leaves you "rockbound." W9DR recommends using a variable-gap holder to achieve frequency excursions of up to 24 kc at 20 metres, yet retain stability of signal.

But, W1TS, prefers even more flexibility and uses a two-tube electron-coupled oscillator/exciter unit for maximum freedom to roam the bands.

From 50 years ago, QST, April 1986

This method for learning the code is not for those that are experts or those who will learn by sound.

LEARNING THE CODE

Rev Suter VK6SA
PO Box 261, Mandurah, WA. 6210
© 1986

I have recently been hearing and re-reading some of the calls by the WIA for articles for publication, and have also been enjoying the articles that have been accepted for publication in response to such calls.

I am thus encouraged to make this contribution. It is not for those who are experts at the code. Neither is it for those who will learn by sound.

This method was given to me as an illuminated picture. An hour later I knew each letter. (Others have since done the same). What an encouraging change that was from the previous 30 years of frustration of being "unable" to learn it.

The next step was the "slog" of building up

receiving speed. For this thanks to all Morse broadcasters and a special thanks to VK6s MY, PH and AUK.

The printed code in this article will immediately shape the dits and dahs into meaningful shapes and — Presto, here is meaning; here is Morse!!

The first step is to print faint large capitals with a pencil and then follow around these outlines in red felt-tipped pen with the dits and dahs of the letter concerned. The letter that you sketch should be at least two-centimetres high.

On Figure 1, you will see step two. That is a list of nine words which together include the whole alphabet; print each word on a separate card.

The words depicted have been very carefully selected so that confusion between letters in the same word is minimised.

I would suggest that you first learn only the letters of word one, with all the other letters covered. Then learn word two, etc. This way you should quickly master the letters.

The next step is to learn the nine-word list so that you can go through it from memory whilst driving, talking, or whatever.

One day, you will enjoy Morse code the same as many folk like good music!

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1. SAGE

S ...
A --
G ---
E •

dd'dit
d'dah
dah dah dit
dit

4. HOPE

H
O ---
P ---
E

7. FADE

F ...
A ---
D ---
E

2. QUIZ

Q ---
U ...
I ..
Z ---

dah dah d'dah
d'd'dah
d'dit
dah dah d'dit

5. BENT

B -...
E
N --
T -

8. JOKE

J ----
O
K ---
E

3. CLIVE

C ...
L ...
I
V ...
E

dah d'dah dit
d'dah d'dit
dah
d'd'dah
dit

6. XRAY

X -...
R ---
A
Y

9. WARM

W ---
A
R
M --

TECHNICAL SYMBOLS

From time to time Amateur Radio magazine and other radio magazines use symbols in technical articles. Eg The capital letter of Omega is used for ohms, lower case Lambda is used for wavelength. It is hoped the following article may explain to newcomers what the various symbols mean.

The Greek Alphabet is given for reference, as many Greek letters appear in Technical Texts

Letter

Small	Capital	Name	English Equivalent	Specific Inductive Capacity or Dielectric Constant
α	Λ	Alpha	a	Electrostatic Field Strength
β	B	Beta	b	Electrostatic Displacement or Flux Density
γ	Γ	Gamma	g	Electrostatic Flux
δ	Δ	Delta	d	Capacity
ϵ	E	Epsilon	e (as in "met")	Magnetic Pole Strength
ζ	Z	Zeta	z	Permeability
η	H	Eta	ee (as in "meet")	Magnetic Field Strength
θ	Θ	Theta	th	Magnetic Induction or Flux Density
ι	I	Iota	i	Magnetic Reluctance
κ	K	Kappa	k	Magneto Motive Force
λ	Λ	Lambda	l	Self Inductance
μ	M	Mu	m	Mutual Inductance
ν	N	Nu	n	Reactance
ξ	Σ	Ksi	x	Impedance
\omicron	O	Omicron	o (as in "olive")	Susceptance
π	Π	Pi	p	Admittance
ρ	P	Rho	r	Base of Napierian logs
ς	Σ	Sigma	s	Damping Factor
τ	T	Tau	t	Logarithmic Decrement
υ	U	Upsilon	u	Mutual conductance
ϕ	Φ	Phi	ph	Amplification factor
χ	X	Chi	ch (as in "school")	Percentage modulation
ψ	Ψ	Psi	ps	Coil amplification factor or Q factor or other active devices ($\omega L/R$)
ω	Ω	Omega	o (as in "broke")	Velocity of EM Waves

Prefixes for Multiples and Submultiples of Quantities

Multiple or Submultiple	Name	Prefix
10^6	Mega-	M
10^3	Kilo-	k
10^2	Hecto-	H
10^{-2}	Centi-	c
10^{-3}	Milli-	m
10^{-6}	Micro-	μ
10^9	Nano-	n
10^{-12}	Pico-	p
10^{-15}	Atto-	a

Symbols for Quantities for Use in Electrical Equations, etc.

Quantity	Sign
Length	
Mass	m
Time	t
Angles	θ , ϕ
Work or Energy	W
Power	P
Efficiency	
Period	
Frequency	f
$2\pi \times$ frequency	π
Wavelength	λ
Phase displacement	ϕ
Temperature, Celsius	θ
Temperature, absolute	T
Quantity or charge of electricity	Q
Current	I
Voltage (EMF or PD)	E or V
Resistance	R
Specific Resistance or Resistivity	ρ
Conductance	G
Specific Conductance or Conductivity	γ

Signs for Units Employed after Numerical Values

Unit	Abbreviation
Ampere	A
Volt	V
Ohm	Ω
Coulomb	C
Joule	J
Watt	W
Farad	F
Henry	H
Watt-hour	Wh
Volt-Ampere	VA
Ampere-hour	Ah
Kilowatt	kW
Kilo-volt-ampere	kVA
Kilowatt-hour	kWh
Decibel	dB

ANTENNAS FOR SATELLITE COMMUNICATIONS

Australia has been committed to communication by satellite, through the Intelsat network, since 1966, and we have now seen the commencement of the domestic system.

Antenna systems are a vital link in the transfer of information between the ground station and the satellite. The extension of existing services and development of new services, such as direct broadcast satellite and international business systems, has led to an increased number of sophisticated satellites in geostationary orbit. These changes have required innovation in many areas, including antenna technology.

reflector (Figure 1c and 1d) is used with a cluster of feed horns near the focus. Each feed horn produces a narrow beam and these multiple beams are combined to give the footprint.

Techniques for designing shaped beams are being developed at Radiophysics. As an example Figure five shows a design for a heptagon region (shown dashed), which is achieved with an offset Cassegrain antenna with 19 feed horns.

From CSIRO Division of Radiophysics Information Sheet No 84/22, written by T S Bird and contributed by Tim Mills VK2ZTM

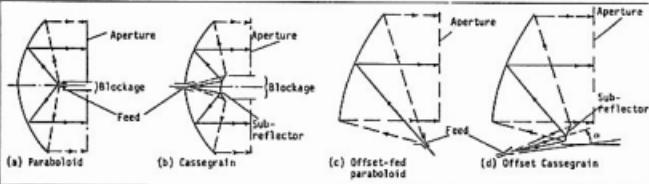


Figure 1 — Reflector antenna configurations.

For ground-station antennas it is common to use a symmetrical Cassegrain reflector configuration (Figure 1b), while on satellites an offset reflector arrangement (Figure 1c, d) is used because it is easier to stow for satellite launch and because the complicated feed network can be located close to the body of the spacecraft.

Figure two shows a typical radiation pattern of the Moree 1 ground station for the Intelsat system, which was recently upgraded by Radiophysics in collaboration with OTC. The sharp beam and low radiation levels away from

the peak (sidelobes) ensure that only one satellite at a time is seen. Low sidelobes were achieved by careful design of the aperture illumination (see Figure 3). The desired result was obtained by adjusting the shape of both reflectors of the 27.4 metre Cassegrain. Another feature of the design is the use of wideband corrugated feed horns described in Information Sheet 84/21.

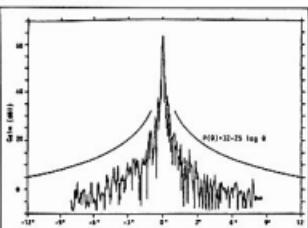


Figure 2 — Moree 1 ground station radiation pattern after upgrading. $P(8)$ represents the maximum allowed level.

Shaped beams to illuminate a given coverage region (footprint) must be produced by an on-board satellite antenna, as shown for example in Figure 4. Commonly an offset

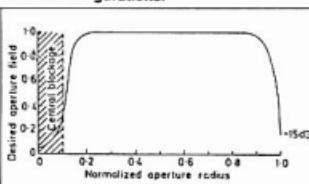


Figure 3 — The optimum design aperture distribution for maximum signal-to-noise ratio and low sidelobe levels.

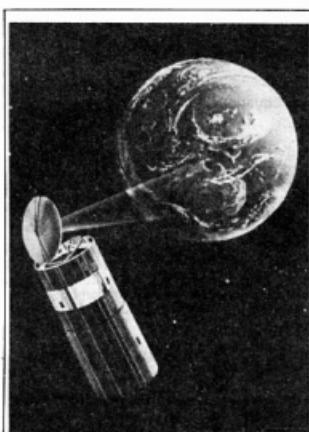


Figure 4 — National Footprint.

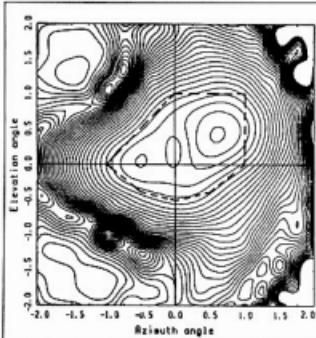


Figure 5 — Contours of intensity of a shaped beam in 1 dB intervals. Peak level is 40 dB.



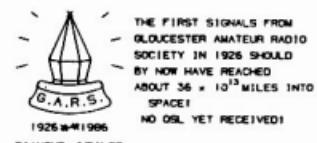
QSP

CT4 AMATEUR SEEKS SPONSOR FOR MIGRATION TO VK

We have had some correspondence with a Portuguese amateur, Fernando J. Fidalgo CT4VO, ex C4SOZ and ZS1ABG, who would like to migrate to Australia and seek an Australian sponsor who may be able to find him employment.

He has had four years experience as a waiter in Portugal (1975-79), also as a salesman (1979-83), and a bank clerk in South Africa (1983-86). His English is good, and he is an enthusiastic DX operator. He is aged 32, married, no children.

If any reader (preferably a restaurateur) is able to help, more information is available from the Editor, PO Box 300, Caulfield South, Vic. 3162.



GLOUCESTER AMATEUR RADIO SOCIETY (c 1926)

This year, 1986, is the 900th anniversary of the Doomsday Book, an historic document in British history. The original idea was conceived in Gloucester Cathedral.

To celebrate this historic event, the Gloucester Amateur Radio Society has applied for, and received permission to use, the call sign GB9DB during the month of September.

The station will commence transmitting on Saturday, September 6, 1986 at 1200 UTC on HF and also VHF. The opening time and date coincides with the opening of the Gloucester Local History Festival, which will be located at the same site.

The station will continue operating on various days during September using the special call sign.

The station will be located at Gloscat Oxtalls Campus, Oxtalls Lane, Gloucester, and QSL cards will be available for stations that contact GB9DB. QSLs may be sent via the RSGB Bureau, or direct to G4AYM, 12 Laura Close, Longlevens, Gloucester, GL2 9JH, Great Britain.

Contributed by Nicholas Negus G4AWT, Secretary GARS

NEAR-FIELD AND HOLOGRAPHIC ANTENNA MEASUREMENTS

It is essential to be able to measure the performance of antennas used in satellite and ground-based communications. Since the early 1970s, largely in response to the increasing use of satellite communications, new measurement methods have been developed to overcome some limitations in classical methods of antenna measurement. Two techniques, the near-field and holographic methods, are currently under investigation at Radiophysics. These methods, while furnishing the usual radiation pattern measurements, provide extra information which can be used for antenna alignment and assessment. In addition the holographic method is efficient for *in situ* measurement of surface errors in large-reflector antennas used for satellite communications and radio astronomy.

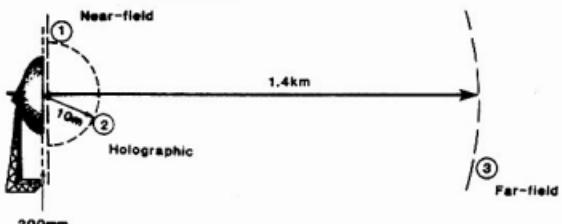


Figure 1.

The techniques under investigation are illustrated in Figure 1 for a three-metre diameter microwave dish antenna for a satellite system. Position three represents the far-field distance conventionally used for antenna measurements. The near-field method (position one) measures very close to the antenna, whereas the holographic method (position two) operates at a somewhat greater distance, although still much less than required for conventional far-field measurements.

An antenna range employing the near-field method is at present being set up at Radiophysics. This will be fully computer-controlled and will measure antennas up to 2.5 metres in diameter. The type of near-field method is specified by the surface surrounding the antenna on which the radiated signal is sampled. Figure 2 (a) and (b) illustrates the planar and cylindrical scanning surfaces chosen for the facility at Radiophysics. From

metres in diameter. The software developed for this facility is quite general and in the future will be utilised for *in situ* measurements of large reflector antennas.

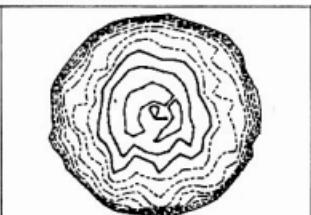


Figure 3 — Contours of intensity of the signal produced in the aperture of a parabolic reflector at 2 dB intervals.

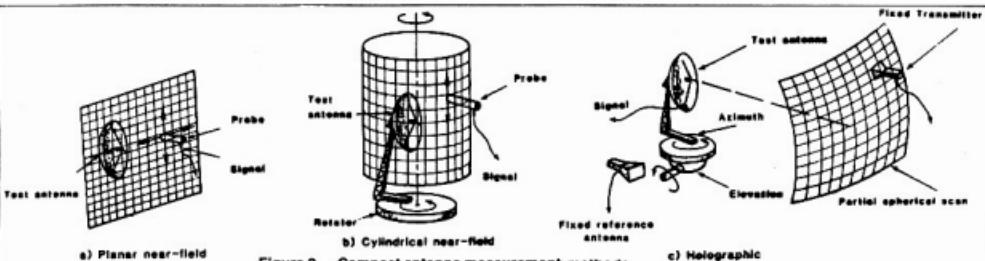


Figure 2 — Compact antenna measurement methods.

samples of the signal received by a probe antenna at selected points on the surface the radiation pattern of the test antenna in the far-field region can be computed.

The holographic technique (Figure 2c) is similar to the near-field method in that samples of the receiver signal are taken on a spherical surface from which the far-field radiation pattern is computed. However, because the samples are taken at a greater distance the computations involved are considerably simpler, and therefore faster. Another difference is that a moving probe is unnecessary, as scanning is achieved by rotating the test antenna to specified angles to receive signals from a transmitter. The holographic antenna range at Radiophysics currently operates up to a frequency of 18 GHz, is fully automated and takes antennas up to two

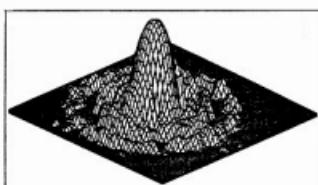


Figure 4 — Radiation pattern of parabolic reflector computed from holographic range data.

An advantage of near-field and holographic methods is that more information about an antenna is obtained in a single measurement. For example, Figure 3 shows the microwave image of a 1.8 metre diameter parabolic dish measured at 5 GHz on the holographic range. Such images can pinpoint alignment defects in the antenna and also allow assessment of reflector surface errors.

Figure 4 represents the radiation pattern of the above antenna computed from the holographic range data.

From CSIRO Division of Radiophysics Information Sheet No 84/18, written by G T Poulton and T S Bird and contributed by Tim Mills VK2ZTF



OUT TO PASTURE

The oldest continually operating communications satellite has been turned off after 19 years of service. The ATS-1 was launched in December 1966, providing an important communications link over the Pacific Ocean. It was designed originally for a three-year mission, but surpassed its design life by more than six times. The satellite carried several scientific instruments, including a spin-scan camera that provided the first wide-angle pictures of the Earth's full disc and helped meteorologists track storm fronts. ATS-1 also was used for communications during emergencies and for day-to-day management of the US Trust Territory of the Pacific Islands, a group of more than 2000 islands, commonly known as Micronesia.

From ITU Telecommunication Journal, April 1986

NEW DXAC CHAIRMAN

John Parrott W4FRU, has been appointed DX Advisory Committee Chairman, following the resignation of Bob Thompson K6SSJ.

Condensed from The ARRL Letter, June 6, 1986

REMEMBRANCE DAY CONTEST SCORING

Ron Henderson VK1RH

171 Kingsford Smith Drive, Melba, ACT. 2615

At the 1986 Federal Conference, the Federal Contest Manager, in his Annual Report to the Federal Council, recommended that the scoring formula for the Remembrance Day Contest be examined by someone versed in statistics.

The writer is not academically well qualified in statistics, but as one involved in the revision of the RD Contest scoring system in 1981, believes he can present the logic behind the current system, together with partially refined data from the past 12 years. This basis should make subsequent analysis by statistically bent members easier and their contribution is invited to fulfill the Convention Report recommendation.

The opportunity was also taken to separate the VK8 results to satisfy a further recommendation.

AIM OF THE RD CONTEST

The aim of the RD Contest, as expressed in past contest rules and in the Federal Contest Managers terms of reference is:

This contest is held to commemorate those amateurs who died during the Second World War and is designed to encourage friendly participation between all amateurs and to help in the improvement of operating skills of all participants.

HISTORICAL BACKGROUND

The Remembrance Day Contest scoring system has evolved over some 40 years with changes to keep pace with changing licensing conditions and members wishes.

The early scoring systems applied to full call licensees only (there were no other!) and a scoring table was devised to accommodate the difficulties faced with interstate contacts as well as the differing numbers of amateurs in each State.

With the advent of the Limited Licence, VHF/UHF contacts increased and intra-State contacts were permitted to score. The re-contact frequency for these has been a point of conjecture continuing to this day.

Various trophy score formulae were used. These included averaging the top six log entries, normalising by logs submitted to licenses issued (participation factor), VHF/UHF bonuses and double score for CW, to mention a few.

The advent of the Novice Licence added new difficulties to RD contest management and in 1980, the VK6 Division reviewed the past performance of Divisions in the contest and recommended a simple scoring system coupled with a revised trophy formula to be adopted. The scoring base proposed was one point per contact and the formula was to include participation, activity and a weighting factor to equalise differing state performances.

PARTICIPATION FACTOR

The participation factor chosen was the percentage of logs submitted to the licenses issued, by Division. This involvement measure is consistent with the aims of the contest and is shown in Table 1 for the past 12 years, together

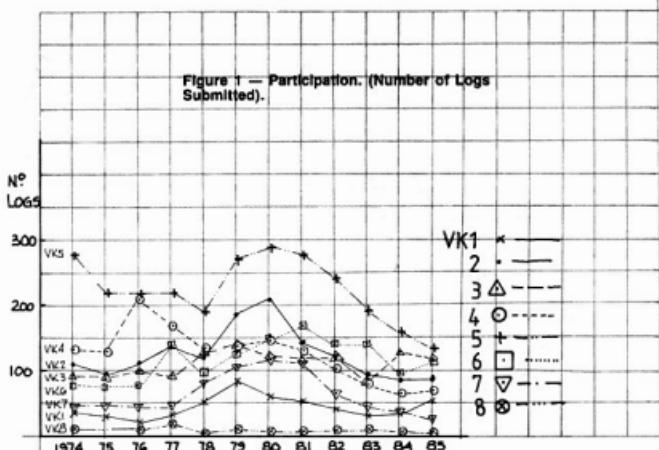


Figure 1 — Participation. (Number of Logs Submitted).

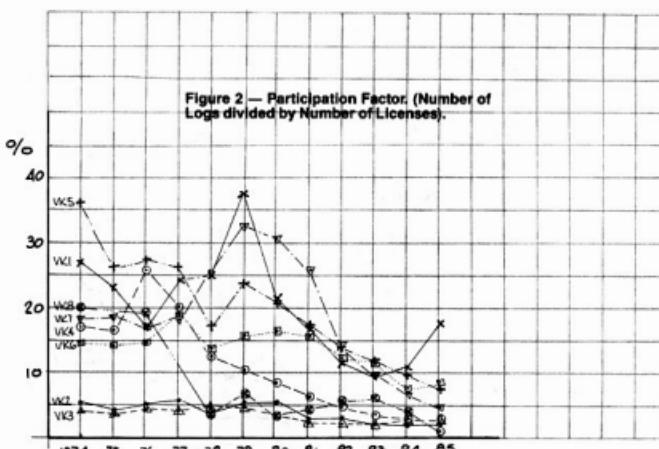


Figure 2 — Participation Factor (Number of Logs divided by Number of Licenses).

with the number of logs received. Participation is plotted on Figures 1 and 2, first as the number of logs submitted (Figure 1), then as the participation factor (percentage logs to licenses on Figure 2).

Figure 1 suggests that the number of entrants has been remarkably constant over 12 years whilst the licenced population has grown, yielding the falling participation factors of Figure 2.

ACTIVITY FACTOR

For the activity factor, the ratio of contacts to

logs submitted was adopted. This is in effect, a Divisions average contacts per entrant.

Unfortunately, neither the Amateur Radio magazine contest results nor the Contest Manager's records show the "contacts made" details for a number of years between 1978 and 1980, however, by using average divisional points per contact it is possible to approximate to contacts made. Post 1980, one point per contact prevails (ignoring minor errors due to "CW counts double" interludes in the scoring system).

Activity factors, computed as both points per

Figure 3 — Activity Factor. (Points divided by Number of Logs).

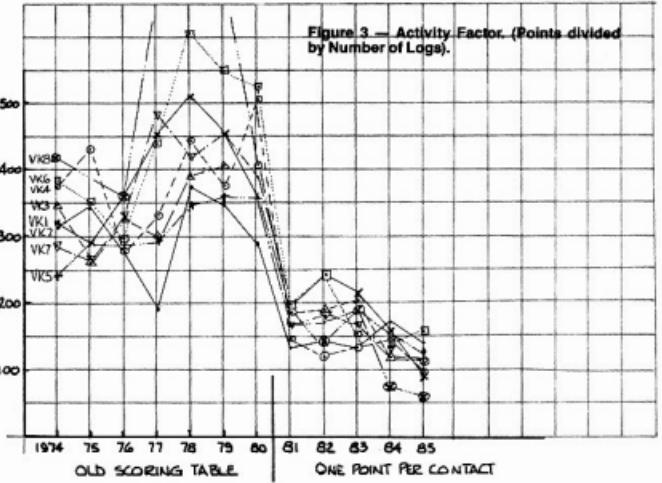


TABLE 1 — RD CONTEST LOGS SUBMITTED AND PARTICIPATION FACTOR = (Number Logs divided by Number Licenses) %

Division	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
VK1	35	29	22	35	51	86	60	52	41	30	34	54
Logs Received Participation Factor %	26.9	23.0	16.8	24.3	25.0	37.6	21.4	16.9	11.6	9.3	10.8	17.6
VK2	109	89	111	138	120	189	211	139	120	92	87	89
Logs Received Participation Factor %	5.1	4.0	5.0	5.8	3.6	5.2	5.2	2.9	2.8	2.1	1.9	1.8
VK3	89	89	97	91	125	141	123	118	121	85	127	121
Logs Received Participation Factor %	4.3	4.2	4.5	4.1	4.8	4.8	3.4	2.7	2.6	2.1	2.9	2.7
VK4	132	128	210	170	134	139	144	131	102	77	65	69
Logs Received Participation Factor %	17.0	16.4	25.6	20.0	12.5	10.4	8.3	6.2	4.8	3.3	2.7	2.8
VK5	278	218	217	220	190	272	288	278	242	193	160	134
Logs Received Participation Factor %	36.0	25.9	27.2	26.2	16.9	23.7	21.2	17.0	13.8	11.9	9.4	7.7
VK6/9	77	74	77	138	96	125	149	170	139	141	96	117
Logs Received Participation Factor %	14.6	14.1	14.8	23.8	13.6	15.5	16.3	15.6	11.8	11.5	7.3	8.2
VK7	42	44	41	46	51	104	118	110	84	44	37	26
Logs Received Participation Factor %	18.1	16.5	16.9	18.3	25.2	32.3	30.7	25.2	13.7	9.2	6.8	4.5
VK8	11	10	18	4	10	6	7	9	10	6	2	2
Logs Received Participation Factor %	19.6	19.0	3.6	6.7	3.5	4.1	5.4	6.0	3.8	1.2		

log and contacts per log, are shown in Table 2 and plotted on Figures 3 and 4. After removing the pre-1980 scoring table influence from Figure 3 to create Figure 4, the vestige of a sunspot cycle periodic variation can be detected in the resulting activity curves, which are reasonably consistent and not subject to great variations over 12 years.

RAW SCORES

The product of the participation factor and the activity factor yields the raw scores which must be weighted to compensate for historical divisional performance differences. The raw scores arrived at from Tables 1 and 2 are shown in Table 3. Unfortunately, the mathemat-

ical expression for the raw score shows numbers of logs submitted as both a numerator and denominator, vis:

$$\text{Raw Score} = \frac{\text{No logs submitted}}{\text{No licenses issued}} \times \frac{\text{Contest points}}{\text{No logs submitted}}$$

This mathematical correctness has confused some members who have assumed that as the expression cancels it is excluded from consideration.

WEIGHTING FACTORS

To the raw scores there are assigned weighting factors or multipliers which are necessary to

achieve a seven-way dead heat. These are shown in Table 4.

When the contest rules are announced in Amateur Radio each year, the Contest Manager issues the current years weighting factors, actually predictions based upon a linear least squares fit to each divisions past 10 years of weighting factors and projected forward one year.

Figure 5 shows each division's achieved weighting factors, the linear fit and the predicted next years (1986) factors. The linear fits are at times not particularly brilliant due to scatter in the data (see VK2), but their use avoids the need to use higher order curves of more dubious application.

WHERE TO IN THE FUTURE?

The writer believes the requirements of the VK6 review have been achieved, for the scoring system is simple, both participation and activity are factors in the trophy formula and all divisions have an equal chance of winning. There is concern that a division may run dead in order to receive a high weighting factor, however this poor performance would be necessary over many years to affect the curve fitting over 10 years.

One way to achieve this would be to not submit entries for several years. I do not think amateurs scattered over a State could be "organised" in this manner.

What about some of the other rules? The VHF/UHF re-contact interval has been two-hours in 1980, one-hour from 1981 to 1984, three-hours in 1985, and two-hours this year. The interval has to be short enough to retain the VHF/UHF operators interest and participation, yet long enough for the VHF/UHF intra-State contacts (both ends of which count to the same division) not to swamp the contest results.

CONCLUSIONS

The RD Contest scoring system and trophy formula have changed over the 40-plus years of the contest, the current system aims to include participation and involvement, to which a weighting factor is applied to give each Division an equal chance of winning the trophy based upon past performance.

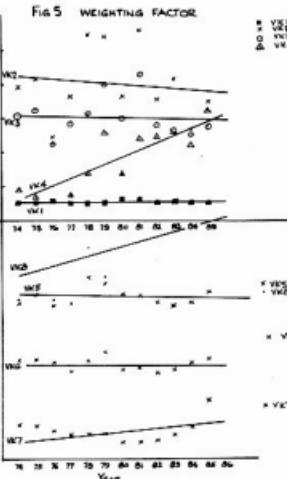


Figure 5 — Weighting Factor.

Figure 4 — Activity Factor. (Contacts divided by Number of Logs).

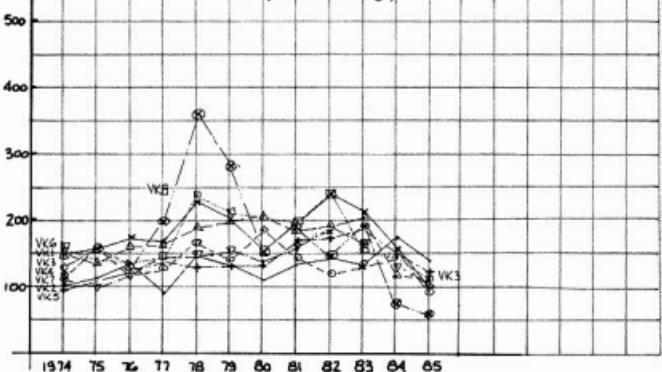


TABLE 2 — RD CONTEST POINTS PER LOG AND CONTACTS PER LOG ENTERED

	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
VK1												
Points per Log	320	288	358	453	511	452	354	197	241	217	160	99
Contacts per Log	147	156	173	159	226	202	158	197	241	217	160	99
VK2												
Points per Log	317	343	271	188	374	352	289	136	143	133	172	142
Contacts per Log	99	110	134	90	144	135	111	136	143	133	172	142
VK3												
Points per Log	343	262	324	303	388	404	421	185	191	206	120	117
Contacts per Log	148	132	160	164	189	197	206	185	191	206	120	117
VK4												
Points per Log	372	433	275	329	443	375	505	145	122	130	147	96
Contacts per Log	126	152	117	127	165	140	188	145	122	130	147	96
VK5												
Points per Log	242	290	286	295	347	364	358	170	175	188	152	124
Contacts per Log	94	122	137	129	135	133	170	175	188	152	124	
VK6/9												
Points per Log	379	349	294	437	607	547	526	196	240	152	144	110
Contacts per Log	152	137	133	142	235	212	204	196	240	152	144	110
VK7												
Points per Log	286	269	328	482	421	449	390	164	185	168	131	110
Contacts per Log	107	100	119	144	147	154	136	164	185	168	131	110
VK8												
Points per Log	413	360	822	969	760	408	183	143	191	75	61	
Contacts per Log	114	126	197	359	282	151	183	143	191	75	61	
Post 1980 scoring	was essentially one point per contact											

TABLE 3 — RD CONTEST RAW SCORES = PARTICIPATION FACTOR X ACTIVITY FACTOR

AR Reference	1974 Nov 74	1975 Nov 75	1976 Dec 76	1977 Feb 78	1978 Feb 79	1979 Feb 80	1980 Nov 80	1981 Jan 82	1982	1983	1984	1985 Feb & Apr 86
VK1	39.4	35.9	29.1	38.6	57.1	75.9	33.9	31.9	28.1	20.1	17.3	17.5
VK2	5.0	4.4	6.7	5.2	5.2	7.0	5.8	3.5	4.0	2.7	3.2	2.5
VK3	6.4	5.5	7.3	6.7	9.1	9.5	7.0	4.6	5.1	4.2	3.4	3.2
VK4	21.4	24.9	30.7	25.3	20.9	14.5	15.7	6.8	5.4	3.9	2.7	2.7
VK5	33.1	21.8	33.2	33.3	21.3	32.0	25.0	24.8	24.4	22.4	14.3	9.6
VK6/9	22.3	19.3	19.6	33.8	32.6	33.3	28.5	28.4	17.5	10.4	9.0	
VK7	19.5	18.5	20.0	26.5	37.1	49.7	41.8	39.2	25.4	15.5	8.9	5.0
VK8	28.7	N/A	24.1	N/A	13.1	28.1	5.3	5.3	7.7	11.4	2.8	.7

• Complete range of **MIRAGE** (USA) equipment including 6m, 2m and 70cm amplifiers, also peak reading Watt/SWR meters. All have a five year warranty.

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ATN ANTENNAS

56 CAMPBELL STREET,

BIRCHIP, VIC 3434.

PHONE: (054) 92 2224

RADIO AT THE GAMES

During early August 1986, the Korean Amateur Radio League Inc (KARL) has been granted permission to install radio facilities in the Olympic site for the purpose of enabling KARL volunteers to provide traffic service for competitors at the games. The Korean Administration has also authorised all visiting competitors and officials of games who possess amateur licenses to make QSOs from the radio facilities available at the Olympic site.

In an effort to help achieve a high status for radio amateurs around the world by its support of amateur radio at the 86 and 88 Olympics, the Administration plans to issue temporary operating licenses to those visiting competitors and officials from all countries including those which do not have reciprocal agreements with Korea.

All visiting amateurs are advised not to take any type of portable transceivers, including handhelds, into the Republic of Korea, as the use of portable radios by amateurs is prohibited.

To commemorate the occasions, the following special stations will be operating during the games period.

86 Asian Games — 6K86AG

88 Seoul Olympic Games — 6K88SOG

During the games period, individual H.F. stations will use the suffix of 86 for the Asian Games and 88 for the Seoul Olympic Games.

Contributed by Young Soon Park H.F.I.F.M, President, KARL.

NEW NAME, NEW NUMBER!

The Australian Coastal Surveillance Centre is now known by the title **Federal Sea Safety and Surveillance Centre**. Telephone numbers are as follows:

Coastwatch (Emergency unusual or suspicious marine or aircraft activities in coastal areas — (062) 47 6666 — (Free STD call or reverse charges)

Search and Rescue (Sea Safety) — (062) 47 5244

Contributed by Alan Hawes VK1WX

TABLE 4 — RD CONTEST ACHIEVED WEIGHTING FACTORS

VK1	1.00	1.00	1.12	1.00	1.00	1.23	1.23	1.01	1.11	1.00	1.00	
VK2	1.88	1.16	4.50	7.39	1.90	10.80	7.29	11.20	7.10	6.30	5.38	7.00
VK3	6.16	5.53	4.48	5.73	6.30	8.00	6.01	8.59	5.60	5.33	5.03	5.47
VK4	1.84	1.44	1.09	1.52	2.77	5.22	2.67	4.77	4.90	5.21	4.41	6.48
VK5	1.18	1.65	1.00	1.16	2.68	2.37	1.67	1.58	1.20	1.00	1.21	1.82
VK6/9	1.77	1.86	1.57	1.14	1.78	2.31	1.26	1.37	1.00	1.28	1.66	1.94
VK7	2.02	1.94	1.64	1.46	1.54	1.53	1.00	1.00	1.12	1.45	1.95	3.50
VK8	1.37	N/A	1.38	N/A	4.40	2.70	7.90	7.39	3.69	1.96	6.20	23.90

PROJECTED WEIGHTING FACTORS FOR 1986

VK1	1.1	VK5	1.4
VK2	7.5	VK6/9	1.5
VK3	5.9	VK7	2.2
VK4	6.2	VK8	6.2

CONVERSION OF THE PYE OVERLAND FM-738 TO SIX METRES FM

With the disappearance of Channel 0 in the Melbourne area, this should provide an ideal climate for an increase in six metre activity, particularly the FM net frequency on 52.525 MHz.

Through disposals outlets, there have been available at various times, the Pye FM-738 which is eminently suitable for conversion to six metres.

Before conversion, give the unit an external visual check to ensure that everything is in order, etc.

LOW PASS FILTER

Remove the two 10 pF capacitors and replace them with 33 pF capacitors. Next remove the 30 pF capacitor and replace it with a 68 pF capacitor. Good quality ceramic high voltage types should be used (630 volts).

TRANSMITTER MODIFICATION

In order to reduce the work associated with the transmitter exciter board, the transmit crystal formula is changed from divide by 24 to divide by 16. This places all tuned circuits in the exciter within the tuning range of the new frequency.

Turning now to the main transmitter chassis, add both the primary and secondary of T203 with a 22 pF disc ceramic capacitor (630 volts). Rewind the plate coil of V1B with 12 turns of 18 gauge enamelled wire, the same diameter as the original coil. Rewind V2's grid coil with six turns of 18 gauge enamelled wire, also the same diameter as the original coil.

Finally, rewind the PA (V2) plate with 14 turns of 18 gauge enamelled wire the same as the original diameter.

TRANSMITTER ALIGNMENT

Disconnect R211 (47 ohm) from PA screen pin 7 and connect a power meter to the aerial socket. Screw the slug T11 so that it is flush with the top of the can then screw the slugs of T12 and T13 until the bottom ends of the slugs are flush with the printed circuit board.

Screw the slug of T202 flush with the bottom of the can, then screw the top and bottom slugs of T203 to either ends of the former.

Insert a 3.282.81 kHz D-style series resonant crystal into the crystal socket. Place the positive lead of a DC volt-meter (2.5 volts) to TPX and the negative lead to the negative supply (chassis).

Adjust T11 for maximum (a slight peak). Move the meter to TPY and adjust T12 for maximum indication, then repeat T11 for maximum. Move the meter to TPZ (circuit board under chassis) and peak T13 for maximum.

Place meter on pin 4 of test socket (below aerial connector) and adjust the slug of T202 for maximum indication. (Place the positive of the meter to the chassis and the negative to pin 4). Next readjust T13 for a peak. Move meter to pin 5 of test socket and adjust bottom and top slugs of T203 for maximum.

Transfer the meter to pin 7 and adjust C220, C221, and C222 for maximum. Keep C221 and C222 equal in capacitance. Reconnect R211 (PA screen resistor) and adjust C224 for maximum output into the power meter, then repeat C220, C221, C222, and C224, together with the PA coupling link into the power meter. This may have to be repeated several times and depending on the age of the valves, 15 to 25 watts should be obtained.

Final tuning of the valve stages should be done with the unit sitting on the top cover or a metal plate to allow for detuning of the high power stages when the radio is finally placed into its cover. When tuning is completed, momentarily remove the transmit crystal and output should fall to zero. Then net the transmitter crystal and set the deviation to about 5 kHz. This can be done with the help of another station, off-air (RV1).

RECEIVER MODIFICATION

Once again, to simplify modifications, the crystal formula is altered to inject on the high side of the carrier frequency.

Receiver Crystal Operating Frequency + 10.7 Frequency =

2

Gently remove the cans from the front end coils. Solder a 10 pF ceramic capacitor across L1, remove the 10 pF capacitor from across L2 and replace it with a 22 pF. Remove the 10 pF from L3 and solder a 22 pF in its place. Remove the remaining 10 pF from across L4 and L5 and place a 22 pF capacitor across L4 and L5.

GOOD NEWS FOR TWO-LETTER CALL SIGN HOLDERS

The Federal Office has received several complaints from members that two-letter call signs were difficult to find when embedded amongst the three-letter call signs in the 1985/86 Call Book.

The call sign listing was prepared on the WIA computer where all sort programs do a straight ASCII sort. This leaves the two-letter call signs in an alphabetical form amongst the three-letter calls.

New programs have been written that will sort by length of call sign, hence the 1986/87 Call Book will have the two-letter calls preceding the three-letter one.

At the 1986 Federal Convention, Council resolved that WIA members should be identified as such in the Call Book. This will be done in the 1986/87 Call Book by placing a symbol before the call sign of WIA members. We apologise in advance to any members whose second call sign may not be identified correctly.

Ian Keenan VK3AYK

6 Pretoria Street, Caulfield South, Vic. 3122

RECEIVER ALIGNMENT

Insert a 31612.5 kHz series resonant D-style crystal into the crystal socket and, with a suitable high impedance RF AC meter connected across the socket, adjust the series crystal coil for maximum reading. With a DC multi-meter on the 2.5 volt range, connect the positive lead to TPZ (next to C25 on the main board) and the negative lead to the negative supply, and adjust L6 for maximum reading. Then connect the meter to pin 1 on the test socket (signal/strength indication). Connect a signal generator, tuned to 52.525 MHz, via a two turn coupling link to L5 and tune L5 for maximum signal. Repeat for L4. Next, connect the signal to the aerial connector and adjust L1, L2, and L3 for maximum reading, reducing the signal generator level as required. Carefully refit all the front end cans and repeat L5, L4, L3, L2, L1 and L6 several times for maximum signal.

When complete, if you are able to measure the quieting it should be 20 dB for .5 uV PD input or better.

Finally, net the receiver crystal by placing the meter on pin 3 of the test socket and, with a signal known to be on frequency, adjust the series crystal coil slug for zero volts on the meter.

So, there it is — the conversion is not difficult and can be done in a couple of hours. I look forward to hearing you on six metres!

EDITORIAL NOTE: Due to space limitations, the circuit diagrams cannot be reproduced here. Those requiring copies for their personal use may obtain them from the WIA Federal Office, PO Box 300, Caulfield South, Vic. 3162, on request accompanied by a business sized SASE.

SPACE STATION

The Soviet Union has a Space Station, Mir, which was launched on February 9. The station has been heard in Canada on 143.625. Other frequencies reported to be in use are 121.750; 142.400; 142.417; 142.800; 143.144; 143.825; 166.000 and 192.040 MHz.

From CRRRL News April 30

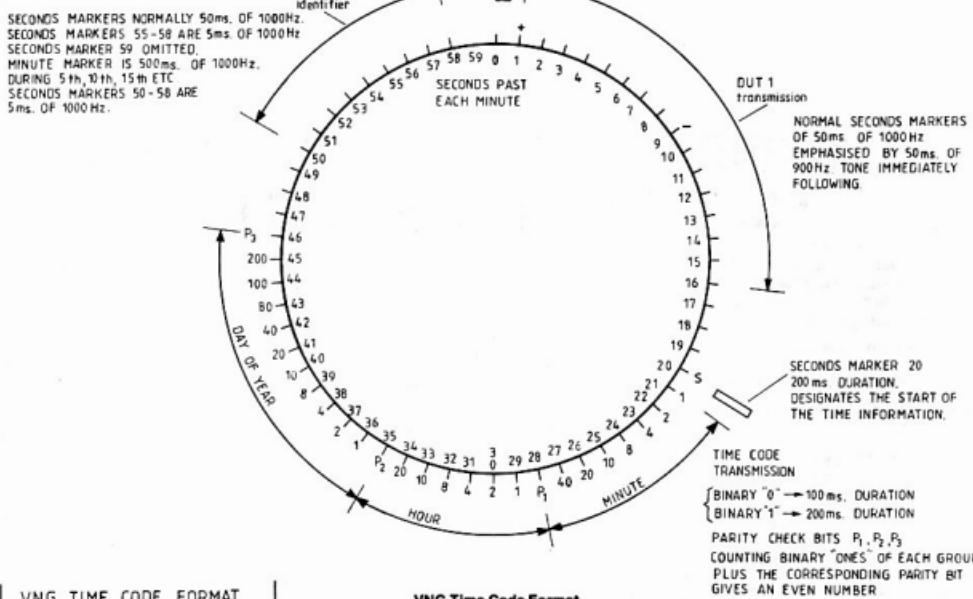
Novice Notes

NEW TIME CODE FOR VNG



Drew Diamond VK3XU
Lot 2, Gatters Road, Wonga Park, Vic. 3115

SECONDS MARKERS NORMALLY 50ms. OF 1000Hz.
SECONDS MARKERS 55-58 ARE 5ms. OF 1000Hz.
SECONDS MARKER 59 OMITTED.
MINUTE MARKER IS 500ms. OF 1000Hz.
DURING 5th, 10th, 15th ETC
SECONDS MARKERS 50-58 ARE
5ms. OF 1000Hz.



VNG TIME CODE FORMAT

VNG Time Code Format.



REGION 2 Conference

In commemoration of the IARU Region 2 Conference, which will be held in Buenos Aires from October 20-25, local radio clubs in Argentina will be operating special event stations using AZ1ARU1, AZ1ARU2, AZ1ARU12. The operations will continue until October 31.

OSL cards for AZ1ARU5 should go to LU6FAZ. OSL information for the other 11 stations is, as yet, unknown.

From The ARRL Letter May 23, 1986

WHAT TIME IS IT?

There are many interesting stations to listen for when you want to catch the time: WWV from Fort Collins, CO on 2.5; 5; 10; 15; and 20 MHz — WWVH from Hawaii on 2.5; 10 and 15 MHz — JJY from Tokyo on 2.5; 5; 8; 10 and 15 MHz — CHU from Ottawa on 3.330; 7.335 and 14.670 MHz — VNG from Lyndhurst, Australia on 4.500; 7.500 and 12.000 MHz — OL85 from Czechoslovakia on 3.170 MHz — VWC from Calcutta on 12.744 MHz — and DOA from the Federal Republic of Germany on 2.775 and 12.763 MHz.

From The ARRL Letter May 23, 1986

A short wave standard frequency and time signal broadcasting service VNG has operated from Radio Lyndhurst, Victoria, for 20 years. Telecom Research Laboratories were responsible for the establishment of the service and continue to maintain the carrier frequencies and instant of time, as transmitted, to within close tolerances of the Telecom (ATC) Standard of Time and Frequency operated at the Clayton Laboratories complex.

An updating of the broadcast time code format has been implemented which adds time of day and day number of the year information without alteration to the existing minute, five-minute and 10-minute identifying sequences or DUT1 coding. The DUT1 Code relates the deviation between the Earth's angular position time scale UT1 and the Co-ordinated Universal Time Scale UTC.

The addition of this extra information in binary-coded-decimal (BCD) form, will enable time code receivers to operate directly from the received signal by decoding the pulse sequences and updating a receiver's time output

completely every minute.

For maximum security under marginal reception conditions, the so-called "slow code" at a bit rate of one Hertz has been adopted, the complete information thus extending over most of one minute. The low transmission rate also permits decoding by the use of simple recorders.

As VNG has Australia-wide coverage, the upgraded time service will have many new applications where HF radio reception is the only convenient source of accurate time information. Such applications include surveying, data logging, telemetry systems and shipping.

The method of encoding used complies with CCIR recommendations for Time Codes and is similar to the "slow codes" transmitted from the standard frequency and time signal stations MSF at Rugby in England and DCF77 near Frankfurt, West Germany.

The new code has been on air since May 14, 1986 and has created renewed interest in the VNG service provided by Telecom.

NOVICE LICENSING INTO THE 21ST CENTURY

A Discussion Paper

G S Bracewell VK3XX

At the 1982 Federal Convention it was determined "at this time" that extension of Novice facilities was not an appropriate policy to pursue. However, it was moved at the 1986 Federal Convention that steps be taken to address Novice access to the VHF/UHF spectrum prior to or in conjunction with consideration of the direction of amateur radio into the 21st century. This motion was unanimously carried by the Federal Council.

Since 1982 there has been an "explosion" of interest in the community in micro-computing, and in the ranks of radio amateurs in particular. Typical applications being:

to aid design calculations in amateur projects to provide data base facilities for contests and logging

to calculate beam headings and distances for world-wide communications

to track amateur and other satellites

to enable the amateur to encode and decode high speed data communication.

It has been stated by Messrs Linton and Harrison that the Amateur Service needs to attract younger participants and that computer hobbyists represent a potential target for recruitment. While it is the opinion of the writer that this potential has been overstated it is not denied that some potential does exist. Such people would see the opportunity to extend their world of "keyboard" communication via the public telephone network to communication by radio.

To exploit that potential it has been suggested in the same paper that an entry into amateur radio by way of a lower level of examination to those currently available be sought. Many members of the WIA have expressed views against lowering the technical standard of entry as "numbers" should not be the criterion on which the success or otherwise of the hobby is judged. With three levels of amateur licensing in Australia already the DOC principle of "let the user pay" has crept into the examination structure and is making it economically unattractive to young people to consider amateur radio as a hobby when home computing, for example, incurs no cost beyond equipment and certainly no requirement for formal study and examination.

It is, therefore, postulated that the lowest entry into amateur radio should always be by way of the Novice licence. However, since its inception in the 1970s amateurs have felt strongly that there must always be an incentive to upgrade to either Limited or Unrestricted licences. Consequently, there has been reluctance to consider widening the scope of the facilities available to Novices.

Considering the wide technical scope of the Novice Examination syllabus, effectively examined at an appropriate level by the present range of multi-choice questions, there is relatively little benefit to be perceived beyond the facilities available in the Citizens Band Radio Service. The CBRS already permits operation, without qualification by examination and at lower licence cost, using:

AM and SSB on 27 MHz and

FM on 470 MHz, including use of repeaters.

There may be pressure by the CBRS for DOC to authorise digital communications on 470 MHz once it is recognised that suitable equipment is commercially available. This would provide an alternative path for the computer hobbyist interested in digital communication by radio, to the detriment of amateur radio.

In giving consideration to reciprocal licensing with Japan, where a "no-code" telephony licence exists, the DOC are proceeding on the basis of offering a VHF only, 10 watt power licence to such a Japanese operator. With de-regulation of modes and bandwidths above 50 MHz one can assume that this licence will permit digital modes as well as telephony. This proposal is contrary to the wishes of many members of the WIA but is being

pursued by DOC on a limited time basis (12 months) as for the existing visitors' licences. It will therefore not be a true reciprocal licence for permanent or extended-stay residents of Japanese origin.

In view of these factors the WIA must now look toward seeking expansion of Novice facilities. Not every Novice wishes to, or is capable of, upgrading their licence. Operation within present mode and frequency limitations will eventually cause enthusiasm to fade and there could be a loss to amateur radio of those, who "having been there, done that" see little challenge available to them without further study and formal examination.

PROPOSED EXTENSION OF NOVICE PRIVILEGES

Perhaps the time has come to open up the VHF/UHF amateur band spectrum to the Novice operators.

Currently, the syllabus is orientated toward CW, AM, and SSB operation and these are the only modes available to Novices. It is proposed that extension of privileges should involve the introduction of FM techniques into the syllabus at an appropriate level. Some may say this will make the Novice examination harder to pass and be a further hurdle to entering the ranks of the amateur service. Such a reaction is more likely to be emotional than significant.

Having introduced this additional technical topic, there is then justification for Novices to be allowed FM telephony, and digital communication using AFSK, FSK and similar techniques. Examination in the associated digital technology and software is really no more appropriate than examination in speech! The Novice then requires space to practice this new found art and, except for RTTY at 45/50 Baud, the 3.5 MHz band is certainly not the place.

The amateur service has many under-used megahertz at its disposal in the VHF and UHF spectrum. Much of this is coveted by professional radio services. If it is to be retained by the amateur service it must be seen to be utilised. What better prospect of increasing the occupancy of those frequencies than opening them up to the Novices? It might even permit SSB contacts on 70 cm without having to make prior arrangements!

At present DOC are tending toward greater deregulation of the amateur service, with particular reference to frequencies above 50 MHz. Consequently, it is now appropriate to assess their reaction to new Novice initiatives from the WIA.

WHAT AND WHERE?

Assuming that consent to this proposal is received then we must decide what to seek from DOC in extended privileges for the Novice operator. Arriving at consensus is likely to be more difficult than getting agreement from DOC (or sorting out the tax system!).

One factor will involve little argument, namely authorised power. There is no justification for seeking power more than current Novice level on the HF bands.

Given the proposed addition to the Novice syllabus, there is no logical reason why all the emission modes allowed to Limited and Unrestricted licensees should not be allowed to Novices. There could be philosophical objections to pulse and television modes but in practice truly "novice" Novices are unlikely to become involved in the more "hi-tech" modes and yet not be sufficiently motivated to upgrade their licence.

Frequency allocation will probably provoke the most heated debate. We have been used to the principle that novices be given a limited frequency allocation in the MF and HF region. Agreement is unlikely that this should change, particularly on the 3.5 MHz band. The philosophy of a limited Novice segment being allocated to overlap the CW and telephony sections (as defined under earlier band planning) of the bands, gave the opportunity for Novices to communicate with

Unrestricted licensees on both modes. However, band planning in the VHF/UHF spectrum precludes application of the same philosophy without more than one Novice allocation per band to take advantage of the wider range of transmission modes which will then (hopefully) be available to the Novice operator.

There is, therefore, a strong incentive to open up the VHF/UHF bands in their entirety with perhaps some reservation in respect of six metres. Does this appear as heresy to the Limited and Unrestricted operators? It really should not, because the restriction to a mean power output of 10 watts does provide a clear distinction between the Novice and the higher grades.

In seeking to arrive at consensus one or two other factors need to be considered.

What about six metres where power restrictions, based upon geographical location, will apply to all operators in the 50-52 MHz region?

Is two metres too crowded to accommodate Novices?

What about 10 metres if FM is to be allowed to Novices and repeater operation is approved for this band?

Why should Novices not have access to the Amateur satellites?

Because of limitations in the 50-52 MHz section of six metres it would seem inappropriate to propose allocation here at least until other usage permits amateurs throughout Australia to have the same privileges. A Novice allocation of 52-54 MHz would enhance activity on an appropriate modes in this section of the band according to the Australian Band Plan and would provide a transition ground between HF and VHF techniques for the novice interested in construction and experimentation.

Is the two metre band too crowded already? Maybe some of the repeaters are over-loaded but then some others are rarely used. Some of the dedicated simplex frequencies may seem to be well used but in reality, even in cities like Melbourne and Sydney there is much open space on two metres particularly at the low frequency end where there is virtually no CW activity except EME and relatively little on SSB. One thing which has become apparent in Europe with the huge increase in VHF-only licences in recent years is the ability to observe band openings. We must be missing many DX opportunities due to the low level of activity in Australia, most being local FM communications.

So what about 10 metres? Is there any logical reason why the Novice should have an upper frequency limit of 28,600 MHz? No debate is entered into respect of 28,100 MHz and below. Even at times of the sunspot cycle when good propagation over long distances is possible on this band, there is still no real congestion above 28,600 MHz (at least there are not too many VKS there).

Is there any reason to believe that Novices will be any less gentlemanly than others in respecting the satellite downlink portion of this band?

Given 10 metre FM repeaters why should Novices be denied their use? With the introduction of FM into the syllabus this could be a "shot in the arm" for 10 metres and help to justify efforts being made to introduce repeaters to this band either for in-band operation or for cross band "gateway" facilities.

At present the Novices are unable to access any of the amateur satellites. Even when one of the RS series goes into service with its uplink on 21 MHz (Mode K) there is a distinct possibility that it will be outside the novice allocation. Yet 10 watts on two metres is an ideal power level for satellite operation with the circular orbit satellites on the Mode A uplink.

AND WHAT ELSE?

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REVIEWS: Peter Williams on the ATS803 receiver
Jon Fairall plays with Polar Instruments T1200
Louis Challis tests KEF GT200 automotive speakers

PROJECTS: the modem is complete
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C64 function switches.



Equipment Review

Ron Fisher VK3OM

3 Fairview Avenue, Glen Waverley, Vic. 3150

KENPRO KT-220E TWO-METRE HAND-HELD TRANSCEIVER



The two-metre FM hand-held transceiver must be a popular market. Here is yet another one to compliment the several already available through local outlets. Kenpro products have been available on the local scene for many years and they are well-known for antenna rotators and ancillary amateur equipment. I am not sure if Kenpro are related to the original Ken Company who produced the first two-metre hand-held, sold in this country many years ago, the famous KP-202.

The subject of this review, the KT-220E, is marketed in the USA under the Santeec brand and is known as the ST-20T.

Well, let us look at the KT-220 in detail to see what it has to offer. It is a handy size, being just a little longer than the well-known Icom IC-2. The width and depth are about the same. The actual measurements are 18 x 4.5 x 6.5 cm (HWD). The weight is 550 grams compared with 525 grams for the IC-2.

It is interesting to note that the battery pack of the Kenpro is inter-changeable with the Icom, although the standard battery supplied with the KT-220E is a 9.6 volt unit as against the smaller 8.4 volt IC-2 power pack.

The Kenpro has all the features of the opposition plus a few more. Frequency selection is via a 16 button key-pad. A LCD readout displays transmit and receive frequency, memory or non-memory operation, scan stop mode, repeater offset and a clock. The top control panel has audio volume/power on/off, squelch, external microphone speaker outlet, high/low power selector, external 13.2 volt power input socket and the indispensable adjunct for the enthusiastic two-metre operator, an S-meter.

The side panel has the PTT bar, a button to activate the S-meter/LCD display illumination, a slide switch to lock the frequency control panel and a battery release button.

Frequency coverage is from 144 to 148 MHz in 5 kHz steps with an overlap at each end of the band. There are 10 memories which can be programmed with the required offset. Four scan modes are available, the first stops on a signal as determined by the centre zero detector, and then holds for 15 seconds before resuming scan.

The second mode stops on the first signal found and stays on that frequency. The third, like the first, stops but does not resume the scan until the transmission stops and the fourth is the memory scan which can be programmed to skip any of the selected memories not required at that time. A manual scan is also available with up/down buttons.

With the standard battery, power output is rated at 3.5 watts on high power selected, 0.5 watts on low power. Output can be increased to five watts using an external 13.2 volt supply which, as mentioned earlier, can be easily plugged into the top panel connector.

The KT-220E is supplied with a flexible stubby antenna, a belt clip, a wall plug-type battery charger, a selection of connector plugs, an earphone and instruction book.

ON THE AIR

As with any key-board controlled transceiver, the operation of the KT-220E takes a bit of practice. Most of the buttons have double functions with the secondary function becoming available through the 'A' or function button. In the manual mode, most required frequencies can be selected by entering one or two figures and then pressing the set button. For example, enter 65, press set and you are on 146.500 MHz. You can, of course, enter the frequency by dialling in each number in turn if you have plenty of time.

With the frequency and offset selected, it's just a matter of pressing the function 'A' button, the memory button 'D' and required memory channel number, eg '9' and there you are. Be prepared to sit down for an hour or two to sort it all out. The instruction book is reasonably well written in this respect.

Received audio quality from the in-built speaker is good with a crisp sound, but like most hand-



Top View of the KT-220E.

helds is somewhat down in power output. With a good quality external speaker connected, both the quality and output level were good.

Transmit audio was reported as very clean and clear quality. Kenpro do offer an external speaker microphone as an option, but this was not available to test, however, again coincidentally, the Icom HM9 speaker/microphone worked very well with the Kenpro. I often get the impression that most Japanese manufacturers buy in many of their components from the same source. In other words, I do not think that Icom, Yaesu and Kenpro make their own brand of microphones. Stick a label on it and it turns into whatever brand is wanted.

A light is provided to illuminate the S-meter and LCD display. It works quite well for the meter but is useless for the display, just where it is needed most.

The keyboard buttons have a soft rubbery feel. I noted that at times one of them had a tendency to stick in and while this did not seem to effect operation, it might be interesting to see if this becomes a problem in the future. Also, the buttons are rather small. I found that they were better operated with the finger nail rather than the finger.

UNDER TEST

Perhaps one of the more important tests with a battery powered hand-held transceiver is the current drain. I carried out two series of tests to check this, one with the normal 9.6 volt battery connected and the second using 13.8 volts from an external power supply. The results with the resultant RF power output were as follows:

9.6 volts power output (high) 3.5 watts 600 mA.
(low) 0.5 watts 350 mA.
13.8 volts power output (high) 5.0 watts 800 mA.
(low) 0.5 watts 360 mA.

The power output figures are right on specifications. The current drain is fairly high for the 250 mAh battery so you would need to keep overs fairly short. With 13.8 volts connected, a full five watts output is available, well within the ratings of a simple one amp power supply.

I next measured the battery drain on receive. With the receiver squelched and no audio output, the drain was 75 mA. At full audio output with no audible distortion, it was 180 mA. Again, it is a case of keep the volume as low as possible for extended battery life.

Power output and audio distortion was next checked. Feeding an eight ohm terminating audio watt meter, and a noise and distortion meter, the following results were noted. There was 10 percent distortion at 375 mW, 30 percent distortion at 450 mW.

This indicates that the total audio output is rather limited. At low volume, it sounds fine but if used in an average car at 80 to 90 km/h you might find it rather lacking. However, as mentioned



Keypad.

earlier, an external speaker can make a big difference.

Receiver sensitivity was checked. At .25 uV the SINAD was 12 dB and at .1 uV it measured 6 dB. The .25 uV figure is right on specifications. The S-meter is naturally rather small. It is calibrated with nine divisions presumably for nine S-points and labelled 1, 3, 5, 7 and 10, which I guess means S9 + 10 dB. Whatever, the following results were noted.

S1	S3	S5	S7	S8	S9
.5uV	.7uV	8uV	10uV	40uV	Not reached

The meter would not go beyond S8, regardless of the signal input. However, it is better than nothing.

On transmit, the meter becomes a volt meter. At the junction of the red and green section on the scale, it is exactly 9.6 volts with 13.8 watts indicated at the start of the red 10 on the S-meter scale. The receiver front end performance appeared to be quite good for a hand-held. While receiving a weak signal of around .5 uV, I injected a strong signal 50 kHz away. It required an input of 10 mV to degrade the signal-to-noise ratio by 2 dB on the wanted signal.

All in all, these figures are very reasonable for a two-metre hand-held transceiver. The only point of criticism is the low receive audio output, but even that is not too bad.

INSTRUCTION BOOK

The book runs to 26 pages. It is well written and contains a lot of useful information. The circuit diagram is spread over four pages while printed

circuit layouts cover another four. A page of trouble shooting hints mainly cover operating problems.

The actual operating instructions are good. Flow charts show how the various functions are programmed.

Thanks to Emtronics of Sydney and Melbourne for the loan of the review transceiver. Further inquiries should be directed to them or refer to their current advertisement in *Amateur Radio* magazine.

EVALUATION AND ON-AIR TEST AT A GLANCE

APPEARANCE

Packaging *** Strong carton with foam inserts.

Size *** Not the smallest full featured HT, but very good.

Weight *** Again not the lightest, but very good.

External Finish *** Very clean and presentable finish.

Construction Quality *** Good internal wiring and construction.

PANEL CONTROLS

Location of Controls *** Key-pad and top panel controls well located.

Size of Knobs *** For a hand-held, quite large. Keyboard buttons rather small.

Status Indicators

*** All built into the LCD readout. Transmit, receive, offset, memory, scan, battery alarm.

S-METER AND DISPLAY ILLUMINATION

* S-meter clearly lit but very little gets to LCD display.

RECEIVER OPERATION

Memories

*** Ten memories with repeater offset included.

S-Meter

** Better than nothing. (See test section).

Sensitivity

*** As good as most other hand-helds.

Signal Handling

*** Better than most hand-held transceivers.

Internal Speaker

** Clear distinct quality but output limited.

TRANSMIT OPERATION

Power Output

*** Very good output for most applications.

Battery Drain

** Keep your overs short.

Audio Quality

*** Crisp clean audio.

Metering

** Indicates battery voltage only. No output indication.

MANUAL

Owners Hand Book

** Clear adequate instructions. Circuit and board layouts.

OVERALL RATING

*** If you need a hand-held, this one is worth looking at.

Rating Code:

* Poor; ** Satisfactory; *** Very Good; **** Excellent.

MORSE CODE TONE CONVERTER

This device varies the tone of Morse code from tape or record to suit ones own individual taste.

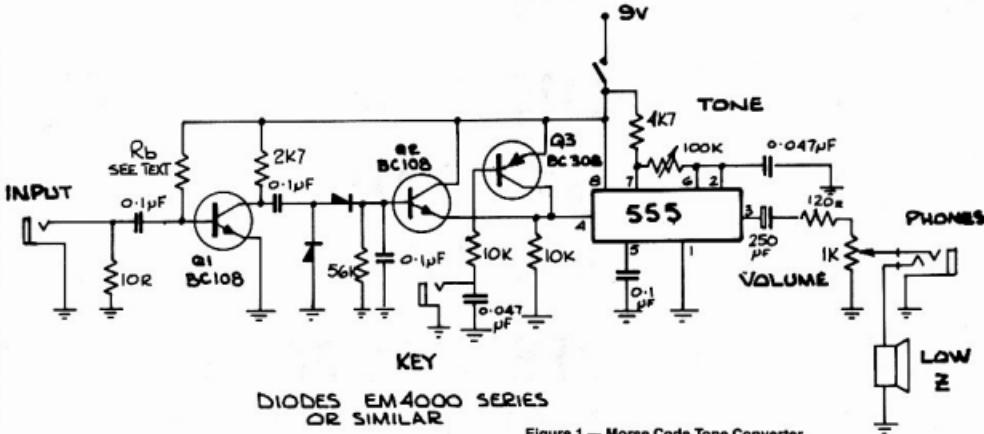
Also when the play-back speed is varied, the tone remains the same.

A key facility has been included for sending practice Morse.

Rb is selected with no signal input so that Q1 Vc is about 90 mV. This allows for a wide range of input signal level to be handled.

Connect the input of this device to the speaker output of a tape recorder or record player whose volume-control can be set at any point above the threshold of operation.

The unit was constructed on Vero-board and placed in a small wooden box with a sloping metal front panel.



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OSCAR-10 APOGEES
AUGUST 1986

DAY	ORBIT	U.T.C	APOGEE MM:SS	SATELLITE	BEAM HEADINGS												
					CO-ORDINATES	SYDNEY	ADELAIDE	PERTH									
				LAT DEG	LONG DEG	AZ DEG	EL DEG										
8th	August																
212	2355	1942:49	-19	207		5	72	43	67	78	49						
1st	August																
213	2357	1901:47	-19	170		56	76	59	68	95	48						
2nd	August																
214	2359	1726:48	-17	107		56	63	71	52	98	32						
3rd	August																
215	2351	1639:51	-19	179		58	55	79	43	95	23						
4th	August																
216	2352	1558:53	-19	170		77	47	85	35	99	15						
5th	August																
217	2355	1517:54	-19	161		94	38	90	27	105	7						
6th	August																
218	2356	0257:26	-19	51a													
218	2357	1436:57	-19	171		59	29	76	16	106	-1						
7th	August																
219	2358	0216:26	-19	216		71	21	100	19	257	8						
219	2359	1356:07	-19	174		71	21	100	19	257	8						
8th	August																
220	2359	0151:21	-19	217		71	14	105	3	252	16						
9th	August																
221	2357	0051:21	-19	168													
221	2357	1234:05	-19	128		104	5	206	5	257	24						
10th	August																
222	2351	0918:36	-19	298		55	2	201	13	271	32						
222	2352	1153:07	-19	114		168	13										
222	2354	2321:29	-19	259		137	18	106	26	277	41						
11th	August																
223	2358	2251:41	-19	261		264	19	172	29	284	50						
12th	August																
224	2359	2120:44	-19	270		169	26	179	37	294	58						
13th	August																
225	2352	2129:46	-19	261		275	34	255	45	308	66						
14th	August																
226	2354	2049:49	-18	251		261	43	194	54	333	72						
15th	August																
227	2356	2007:52	-19	242		239	51	307	61	9	74						
16th	August																
228	2355	1926:52	-19	230		301	59	326	67	48	78						
17th	August																
229	2359	1845:55	-18	212		117	48	354	78	57	83						
18th	August																
230	2352	1740:06	-19	214		243	71	47	57	78	54						
19th	August																
231	2354	1740:01	-18	209		51	71	46	58	78	45						
20th	August																
232	2356	1643:03	-19	118		41	58	51	58	84	37						
21st	August																
233	2355	1620:05	-18	188		56	57	71	45	98	28						
22nd	August																
234	2350	1521:08	-18	178		49	51	79	42	94	19						
235	2352	1449:11	-19	187		57	43	55	51	99	11						
24th	August																
236	2354	1359:13	-17	159		84	54	90	23	103	3						
237	2355	0158:45	-17	233													
237	2356	1216:16	-17	148		27	26	56	15	256	1						
24th	August																
238	2357	0057:47	-17	223													
239	2358	1227:19	-17	129		94	18	102	7	260	9						
25th	August																
239	2359	0015:50	-17	214													
239	2350	1156:21	-17	129		99	9	135	-1	265	17						
239	2351	2335:52	-17	305													
26th	August																
240	2312	1115:24	-17	126		184	2										
240	2313	2254:54	-17	295		268	3	264	14	275	34						
240	2314	2118:55	-17	268		262	11	129	22	282	43						
240	2315	2118:55	-17	277		267	19	275	36	298	52						

NATIONAL CO-ORDINATOR

Graham Ratcliff VK5AGR

INFORMATION NETS

AMSAT AUSTRALIA

Control: VK5AGR

Amateur: 0945 UTC Sunday

Bulletin Commences: 1000 UTC

Winter: 3.685 MHz — Summer: 7.064 MHz

AMSAT PACIFIC

Control: JA1ANG

1100 UTC Sunday

14.305 MHz

AMSAT SW PACIFIC

2200 UTC Saturday

21.280/28.878 MHz

Participating stations and listeners are able to obtain basic orbital data, including Keplerian elements from the **AMSAT Australia Net**. This information is also included in some WIA Divisional Broadcasts.

ACKNOWLEDGMENTS

Contributions this month are from Graham VK5AGR, Keith Wilkinson ZL2BRUJ, Jim Miller G3RJUH and Bob VK3ZBB.

OSCAR-10 OPERATING HICCUP

Operators of OSCAR-10 will be well aware of the operating anomalies that were being experienced with the spacecraft's management system and on-board computer. The first sign of real trouble occurred on May 17, 1986 when it was noted that the PSK telemetry had become "corrupted."

For those with good memories you may well recall the events following the extended burn of the OSCAR-10 kick-motor, which placed OSCAR-10 in an orbit with an approximate 3600 km Perigee against a projected 1500 km value. I well remember reading the concerns being expressed at that time as to what effect the belts of high radiation within the unplanned perigee of 3600 km would have on the spacecraft RAM memory. I trust that the damage caused at this time will not be terminal to the spacecraft's computing system, however, only the extensive evaluation currently being carried out by the ground control stations will provide the answer that is eagerly being awaited by many satellite communicators the world over. At this stage, no precise results have been deduced, however, in next month's column, we may be able to provide a more precise assessment of the situation.

OSCAR-10 APOGEES

Due to the nature that the computer program is written to derive the apogee data for this column, there does occur from time to time, a day labelled August 0th or September 0th.

This month is no exception with the anomaly occurring twice. Please do not despair, they are simply another way of printing July 31 and August 31. I am aware of the hiccup in my routine and always intend to correct it, however spare time is one commodity I have been extremely short of in recent months. Next time?

SMOOTHED KEPLERIAN ELEMENTS

The following short article from Jim Miller G3RJUH, is commended for your action. The emphemis quoted for OSCAR-10 are those to be up-loaded to the spacecraft and used for the next six month period. The Apogees provided in this column are now generated using Jim's smoothed elements sets.

OSCAR-10 SMOOTHED KEPLERIAN ELEMENTS

by Jim Miller G3RJUH

It is not widely appreciated that those Keplerian Elements helpfully provided by NASA (Argument of Perigee 123.456789 degrees, etc, etc), are not

**OSCAR-10 APOGEES
SEPTEMBER 1986**

DAY	ORBIT #	APOGEE U.T.C H:M:S	SATELLITE CO-ORDINATES		BEAM HEADINGS					
			LAT DEG	LONG DEG	SYDNEY		ADELAIDE		PERTH	
			AZ DEG	EL DEG	AZ DEG	EL DEG	AZ DEG	EL DEG	AZ DEG	EL DEG
8th	September									
243	2419	2852:01	-17	267	273	28	282	39	301	68
1st	September									
244	2421	2811:04	-17	258	279	36	290	47	318	67
2nd	September									
245	2423	1938:07	-17	248	286	44	308	55	345	71
3rd	September									
246	2425	1849:09	-17	239	295	52	315	62	18	71
4th	September									
247	2427	1808:12	-16	230	308	60	336	67	44	66
5th	September									
248	2429	1727:14	-16	228	327	66	3	68	68	59
6th	September									
249	2431	1646:17	-16	211	353	69	38	66	78	50
7th	September									
250	2433	1605:19	-16	202	22	68	49	68	78	42
8th	September									
251	2435	1524:22	-16	192	44	63	62	53	84	33
9th	September									
252	2437	1443:23	-16	183	59	56	71	44	89	24
10th	September									
253	2439	1402:26	-16	173	69	48	79	36	94	16
11th	September									
254	2441	1321:28	-16	164	77	39	85	28	99	8
12th	September									
255	2443	1246:31	-16	155	83	31	98	28	183	-8
13th	September									
256	2444	0802:02	-16	338					259	3
256	2445	1159:34	-16	145	89	22	95	11		
256	2446	2339:05	-16	321					263	11
14th	September									
257	2447	1118:36	-15	136	94	14	188	4		

quite as accurate as they appear. All those decimal places create a false sense of security.

The Keplerian Elements of 1000s of space objects are derived from frequent radar range and range-rate measurements, and are self-consistent to facilitate tracking for a very short time — a few days or weeks.

But satellites like OSCAR-10 are in nice stable orbits, so the elements appear to hold well for quite a while. However, when you take a close look at successive sets of Keplerian Elements, you get quite a surprise.

Take Argument of Perigee; for OSCAR-10 we expect this to change slowly at an average rate of around 0.3 degrees per day — which indeed it does. But carefully plot a graph of Argument of Perigee against time and you will see the points jitter around the steady slope with a variation of some 0.2 degrees RMS. Individual points may be off-slope by as much as 0.5 degrees. So much for all those decimal places!

the other quantity which changes continuously, Mean Anomaly. Steady parameters Inclination, Eccentricity and Semi-Major Axis can simply be averaged. By plotting the graphs — or doing the equivalent manipulation by computer program you can reveal a Smoothed Ephemeris which has real accuracy and long term utility.

So, based on Keplerian Elements sets from May 1985 to May 1986, here is a set which I promise you will find workable for that period and all of 1986. They are the elements as used by the command stations, and are given in 40° -10⁰

Object	OSCAR-10	SHARP PC1455/67 DATA
Epoch Year	1986	
Epoch Time	137.726923	days
Inclination	25.1	deg
RA of Node	79.8268	deg
Eccentricity	0.6	
Arg of Perigee	111.2718	deg
Mean Anomaly	0.0	deg
Mean Motion	2.05855275	rev/day

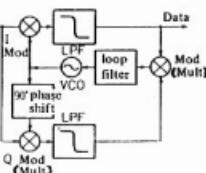
From Keith ZL2BJR/JA, we have an update on the demodulator circuit published in the June/July issues of this column. I also understand that Jim Miller G3RUH, is also preparing a suitable demodulator for this spacecraft along the lines of his now renowned OSCAR-10 PSK Demodulator.

However, from Keith, we have the latest JA offering and for those persons interested, a PCB Pattern and Board layout is included in the JARL CO 1986 Issue No 6 Magazine.

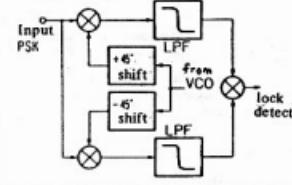
JAS-1 PSK DEMODULATOR REVAMPED

The earlier-described PSK demodulator "A-DEMO" was developed for receiving OSCAR telemetry. The circuit was simple, but the lock range was only ± 100 Hz — adequate for a satellite like OSCAR-10 which is in a high orbit, but not very satisfactory for JAS-1 (because Doppler shift is relatively large). The "A-DEMO" circuit described below uses a Costas loop PLL with lock range of ± 200 Hz, and has "locked," input frequency low ("up") and high ("down") outputs which can be used to automatically correct the transceiver frequency ("up")/("down" outputs occur when the input frequency shifts about 100 Hz from 1600 Hz). A level meter can also be added. The VCO runs at 12.8 kHz, and is divided by eight; a shift register (74C184) gives the desired phase shifts. One adjustment is required: short J1 so U9 operates as a voltage follower and its output

Costas Loop Demodulator



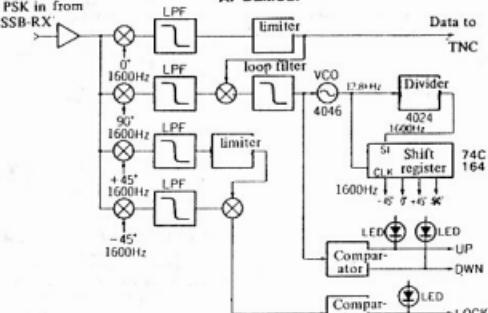
Adding “lock” Indicator.

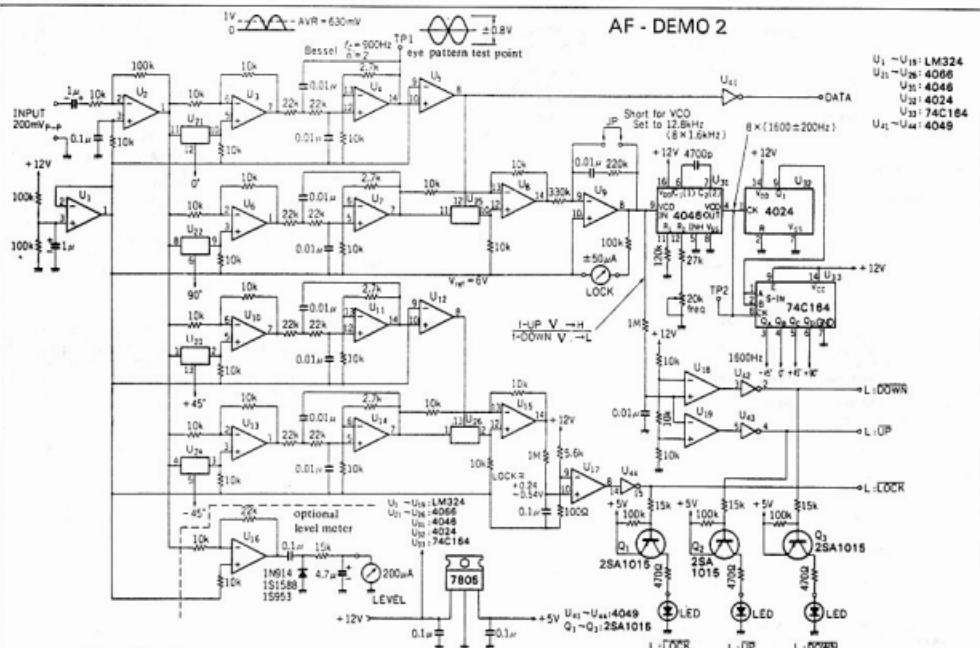


JAG 1 SPACECRAFT

JAS-1 SPACECRAFT
At the time of preparation of this column, JAS-1 was scheduled for launch on July 31, 1986 at 2030 UTC.

AF-DEMO2.





Note: Tie all unused gates to ground.

(For PCB pattern, see (JA) CQ ham radio magazine 16.

equals V_{ref} (6 V), and adjusts the 20 kohm "freq" preset so VCO output frequency is 12.8 kHz (1.6 kHz x 8).

A stable power supply is required.

TESTING THE PSK DEMODULATOR

The Manchester encoder described previously can generate a suitable PSK signal — replace the 1200 Hz clock with 1600 Hz. It is best with two TNCs, one generating a PSK signal and the other demodulating it. If only one TNC/modem is available, tape the (A)PSK signal, and use monitor mode to receive it.

de Colin VK5HI

SATELLITE ACTIVITY FOR PERIOD APRIL 1 TO 23, 1986

1. LAUNCHES

The following launching announcements have been received:

1986-027A Cosmos April 04 USSR
(19667) 1738

1986-028A Cosmos April 09 USSR
(19677) 1739

1986-029A Cosmos April 15 USSR
(19669) 1740

1986-030A Cosmos April 18 USSR
(19681) 1741

1986-031A Molniya April 18 USSR
(19663) 3-28

1986-032A Progress April 23 USSR
(19687) 2000

2. RETURNS

During the period, 47 objects decayed including the following satellites:

1986-065B OPS 3986 April 24

1986-020A Cosmos April 26

1986-023A Progress April 21

1986-029A Cosmos April 28

3. GENERAL

Spacecraft 1986-019A SPOT-1 had the following orbit parameters:

Period 101.72 min Inclination 98.7 degrees
Apogee 838 km Perigee 615 km
Transmitting Frequencies 2205.900 MHz 0.1W
5745.000 MHz
8253.100 MHz
20.000 MHz
8307.100 MHz
0.04W

Spacecraft Viking 1986-019B had the following orbit parameters:

Period 652.18 min Inclination 98.8 degrees
Apogee 13544 km Perigee 819 km



QSP

SO THEY SAID . . . 25 YEARS AGO!

▼ An amateur satellite? Preposterous! But West Coast amateurs have picked up a far-out suggestion by W6TNS in a CQ magazine article and are gung-ho to build an Orbital Satellite Carrying Amateur Radio on two-metres. All we need is a piggy-back ride.

From QST February 1986, and contributed to AR by Steve Mahony VK5AIM



CB ANTENNAE FOR 20 METRES

Lionel Curling VK3NM/ZL1SW
18 Lexington Street, Vermont, Vic. 3133

With a few easy steps, convert your obsolete CB antenna for use on 20 metres.

Should you have, or are able to obtain a half-wave 27 MHz *Station Master* CB ground plane, it can simply be modified for use on 20 metres by removing the base-loading coil and replacing it with a shorting strap.

Slight pruning of the vertical element may be necessary to suit your preference of operating frequency. Further, you may also wish to consider replacing the orange PC conduit (base insulator) to a more suitable ultra-violet radiation resistant type.



All times are Universal Co-ordinated Time and indicated as UTC

AMATEUR BANDS BEACONS

FREQUENCY	CALL SIGN	LOCATION
50.010	JAZ2YD	Mei
50.020	JAG6YR	Japan
50.060	HAG6E0I	Honolulu
50.075	V56S1X	Hong Kong
50.105	JD1YAA	Japan
52.013	P29BPL	Loloata Island
52.020	FK6AB	Noumea
52.100	ZK2SIX	Niue
52.150	VK05S	Macquarie Island (Keyer)
52.200	VK05V	Darwin
52.250	ZL2VHVM	Manawatu
52.310	ZL3MHF	Hornby
52.320	VK6RTT	Port Sampson (Karratha)
52.325	VK2RHM	Newcastle
52.350	VK6RTU	Kalgoorlie ¹
52.370	VK7RTS	Robert
52.400	VK6RTV	Sydney
52.425	VK2CRGB	Gunnedah
52.440	VK4RTL	Townsville
52.450	VK5VF	Mount Lofty
52.460	VK6RPH	Perth
52.465	VK6RTW	Albany
52.470	VK7RTN	Launceston
52.480	VK8BRAS	Alice Springs
144.010	VK3RTS	Sydney
144.400	VK4RTT	Mount Mowbray
144.410	VK1IRC	Canberra
144.420	VK2RSY	Sydney
144.430	VK3RTG	Glen Waverley ²
144.465	VK6RTW	Albany
144.480	VK8BVF	Darwin
144.500	VK1BRAS	Alice Springs
144.550	VK6RS	Mount Mowbray
144.565	VK6RPH	Port Headland
144.600	VK6RTT	Port Sampson (Karratha)
144.800	VK5VF	Mount Lofty
144.950	VK2CRW	Sydney
145.000	VK6RPH	Perth
432.057	VK6RBS	Busselton
432.160	VK6RPR	Nedlands
432.200	VK6RTW	Port Sampson (Karratha)
432.420	VK2RSY	Sydney
432.440	VK4RBB	Brisbane
1296.171	VK6RBS	Busselton
1296.420	VK2RSY	Sydney
1296.480	VK6RPR	Nedlands
1300.000	VK6RVR	Roleystone

1. From the pages of the *West Australian VHF Group Bulletin* for May 1986 comes a complete listing of all their operating beacons and included is VK6RTU, at Kalgoorlie. This was removed from the above list some time ago as no one could confirm that it was operating.

2. Gil VK3AUI, confirms the VK3RTG beacon is operating from Glen Waverley, on a high point with a good look-out in all directions.

Whilst on the subject of beacons, I have received a long letter from Peter VK3AWY, which contains quite a deal of information on the state of VK3 beacons and some of their repeaters. Of interest to readers will be the following:

"The VK3RG beacons on 52, 144, and 432 MHz, along with repeaters VK3RGL, VK3RGC, and VK3RBU, are operated and maintained by the Geelong Amateur Radio Club.

"The six metre beacon was operational until three years ago when internal problems at the site (Mount Anakie) forced us to temporarily suspend operation; so the opportunity was taken to re-build the beacon. Lack of room at the site finally saw the beacons close down.

"The Club, in conjunction with the WIA, decided to pursue acquisition of a site at Mount Anakie. After two-and-a-half years of problems with state and local government and bureaucracy in general, a planning permit has now been issued by the local council. Plans for a building are in the hands of the Institute's draughtsman and it is hoped to have the necessary building permit within eight weeks, after which time construction will commence in earnest with a projected completion date of November 1986.

VHF UHF — an expanding world

Eric Jamieson VK5LP

1 Quinns Road, Forreston, SA. 5233

"Installation of repeaters VK3RGL (2 m), VK3RBU (70 cm), and beacons VK3RGG (6 and 2 m), should take place within two weeks of the completion of the building.

"The new building has been designed to accommodate four 19 inch by seven feet (482 mm x 2 m) equipment racks, work-bench, isolated battery box and room to move. Present equipment will occupy two racks with the remainder designed for future expansion. The 70 cm beacon is part of this planned expansion and could be operational during the latter half of 1987.

"All beacons and repeaters installed at Mount Anakie will be controlled remotely via a two metre uplink. The system currently in operation on VK3RGL is based on the INTEL 8748 single chip micro-processor.

"The Club also constructed and installed VK3RGC (147.725/147.125) at Montpellier (on the western edge of Geelong) during 1985. This is a low power local area repeater designed to serve Geelong and the surrounding areas to about 20 km."

Thank you for the fill in information Peter. The Club certainly has not been wasting its time during the period the beacons have been missing and we look forward to the completion of all the projects.

Still on beacons and associated information, Gil VK3AUI, reports that Lionel VK3NM, recently had a contact with Sojo VK0SJ, at Macquarie Island, on 20 metres during which it became known that Sojo is set up on six metres and has a keyer running on 52.150 MHz (added to the above list). Sojo has heard the Hobart six metre beacon at odd times. Sojo is very keen and spends quite a lot of time on 40 and 20 metres and would welcome reports.

Gil says to contact Sojo is fairly hard but probably the best way is by Telx, which goes in by satellite. This is called *Inmarsat* and the Telx number is 582 1543115. Due to the cost, a short message would be best providing sufficient information is included for Sojo to understand what is required of him.

Two metres is not yet operational from Macquarie, but Sojo will have it ready at the first opportunity, hopefully when weather conditions improve later.

Sojo runs the keyer on 52.150 and monitors other beacons and the call frequency from time to time.

While talking about the beacons from cold places, Mark VK5AVQ ex-VK0AQ, said the Mawson Beacon is not likely to be on during the winter months as the building in which it is housed gets very cold and frequency drop out can occur and this is not helped when power failures occur at Mawson. There are hopes that the beacon will return to a normal schedule from about November onwards. Apparently the hut which houses the beacon is not well located and it is quite a task walking through the snow to re-activate the beacon during the winter, hence it is easier to leave it off.

BRISBANE REPORT

A very interesting letter comes from Paul VK4AUR, who lives at Wynnum in Brisbane and for the first time really gives an insight into the extent of the end of year/early 1986 openings on two metres in that area, and further reinforces the solid coverage of the various two metre openings at that time.

The first opening occurred on December 5, 1985 from 0744 to 0752, when VK4AUR worked ZL3ADH, ZL3ADT, ZL3DJ, and ZL3TIC. All signals were around S3. At 0816, heard ZL2TAL briefly.

The next opening was on 27/12 with ZLs, VK1, 2, 3, 5, and 7 being worked. The next morning at 2233 UTC (still 27/12 day) until 0140 (28/12) Paul worked VK3DFI, VK5NC, VK7ZIF, VK7ZAR/7,

VK7ZJG, VK3XEX, VK5DJ, VK5AIM, VK5ZRO (mobile), VK5ZDR. Signals varied from S3 to S9+.

On January 1, 1986 VK4ZSH worked VK6ZLX at 0820. At 0832, the band opened again and VK4AUR worked VK3WN, VK5NC, VK1DFI, VK3DFR, VK3AUJ, VK5DK, VK3BEH, VK3XEX, VK3BDL, VK3XQ, VK3ZY, VK3AUJ, VK3DUQ, VK3DU, VK3AGB, VK3KQO, VK3KUB, VK3AVJ, VK3ZBJ, VK3KAS, VK3JUM, VK3AMZ, and VK3BHS. Signals were often S9 with the signal from VK3UM at S9 +20 dB for 10 minutes!

On 8/1, at 0823 worked ZL1SW (actually Lionel VK3NM, on holidays!) with S5/S7 signals for ten minutes. On 10/1 worked VK7ZIF, ZAR, and JG, between 0946 and 0958, at S5.

The last real opening was on 15/1 between 0656 and 0911 when VK7ZIF, VK7KJ, VK7CLJ, VK7ZAR/portable, VK7DC, VK3ZEO and VK5AKJ were worked with signals to S8. VK7ZAR portable was incredibly strong at 0709 UTC, and from then on "all hell broke loose"! Another 30 stations in VK3, VK5 and VK7 were worked, signals peaking to S9+.

Since then, Paul reports, the band has been relatively quiet! If it wasn't for Gordon VK2ZAB and his scheds on 144.300 each Saturday and Sunday morning, the SSB part of two metres would be very quiet. The ZL2VHT beacon has been heard along the Gold Coast and north of Brisbane on a few occasions (3/2, 4/4, and 6/4) but no ZLs.

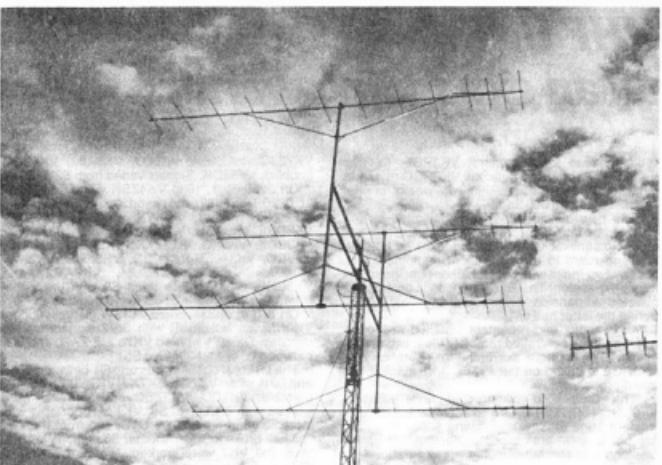
On 4/4, in addition, the ZL 70 cm beacon was also in at good strength, but no ZLs!

The equipment Paul VK4AUR, uses consists of a TS-711A transceiver, HL-1602V5 amplifier at 180 watts PEP, a VV-200VOX mast-mounted GaAsFET pre-amplifier. The feedline is 9913 coax feeding in a four port power divider and 9913 coax phasing harnesses. Antennas are four, 13 element long boom Yagis with ERP possibly around 18 kW. However, during the Es openings he was using a home-brew 15 element quad, so he was down quite a bit on ERP. The present CTH is at sea-level and the antennas are at 50 and 40 feet (about 15 and 12 metres). Paul also mentioned some activity associated with the Eta-Aquarids meteor showers on May 4, 1986. He worked David VK3AUJ, at 2210 on the Sunday morning with S7 reports both ways. After a quick contact with VK3UM, VK1BG and others on 80 metres, he set up a beacon on 144.300 with periods of 10 seconds transmit and then 10 seconds receive, running time 2300 to 0200 Sunday morning and again from 0800 to 1200 during the evening. No one was actually worked but a few signals were copied, mostly during very short bursts. The burst was two seconds of CW at S2/3 at 0902 UTC. Later VK2PG, in Glenbrook, reported hearing Paul's keyer at different times amongst the 35 signals heard during the evening session. Other reports said VK4AUR was also heard in VK1 and VK3. He concluded it was an interesting experiment.

I was not aware that Paul had come from New Zealand originally. But after early July he was to return to New Zealand permanently and will be putting out a good signal from ZL1. He suggests VK stations look for him on 144.100 SSB. Thanks for writing Paul, we all wish you well in New Zealand and would certainly appreciate hearing from you as time permits.

A VERY LONG ANTENNA

The May 1986 Japanese *CO ham radio* 50 MHz page carries some details of what must surely be the ultimate antenna for 50 MHz. It has 11 elements on a boom 13.4 metres long (that is more than 40 feet). It is capable of operating at 1000 watts PEP, has a gain of 14-16 dB, front-to-back ratio is 22-26 dB, side-lobes 25-30 dB, the SWR is 1.25:1 at 50 MHz, 1.1 at 50.750, and 1.3 at 51.500, 1.5 at 52.000 and 1.8 at 53.000 MHz. And it



The four by 13 element two-metre array of Paul VK4AUR, in Brisbane.

weighs 20 kg. Quite a structure. Imagine four of those on six metres, they would make the band hum a bit! Thanks to Graham VK6RO for the information.

While on the subject of antennas, I note that David VK2BA has been making the most of the winter six metre lull by replacing the elements on his beam to allow it to operate on 50.110 MHz. His 10 metre beam of five elements has also been returned to the mast in anticipation of some solar activity.

THE ROSS HULL MEMORIAL CONTEST

Following my request, some comments have come in regarding rules and scores for the annual Ross Hull Memorial Contest conducted in December/January. The following points seem to convey the general impressions gained:

1. The length of the contest was about right.
2. The scoring points on the basis of being irrespective of distance seemed completely unacceptable.
3. The points for bands above 1296 MHz were far too high when compared with the one point for 52 and 144 MHz.
4. The bonus for each new call area made operators chase call areas rather than working more readily available stations in already worked call areas.
5. With the already high points for bands above 576 MHz there was no need for an extra bonus of 10 points for each extra band used.
6. The number of logs submitted is in no way a reflection of the total number of participants. A count of the stations worked by the higher scoring entries should give an indication of the interest in VHF/UHF at that time of the year.
7. Human nature dictates that if you have little chance of receiving an award then you are less likely to submit an entry in the contest unless your entry can be counted along with others to form a State or some other total. Some said they rarely ever sent in logs but were never-the-less very interested in the actual contest and thought VHF would be the poorer for not holding the contest in the summer.
8. A bonus could be considered reasonable if it was applied after working a certain number of stations; eg perhaps an extra five or 10 points for every completed 10 contacts and would possibly be best applied on a band by band basis rather than a totals basis. This could lead to more contacts on each band.
9. There was support for the idea of the contest

being for operation on 52, 144 and 432/576 MHz for a combined total, with separate awards for top scorers on the bands 1296 MHz and above.

From the above you can see some thought is being given to the present problems. As your writer of these notes, I state here and now that I am totally opposed to the abolition of the Ross Hull Memorial Contest and will do everything I can to keep it going. The cause would be helped if more logs were submitted, but I did in fact work hundreds of stations in the summer Es period so there are plenty of stations active at that time.

50-54 MHz DX STANDINGS

DXCC Countries based on information received up to June 15, 1986. Cross-band totals are those not duplicated by six metre two-way contacts. Credit has not been given for contacts made with stations when 50 MHz was not authorised.

Column 1: Six metre two-way confirmed
Column 2: Six metre two-way worked
Column 3: Cross-band (6 to 10) confirmed
Column 4: Cross-band (6 to 10) worked
Column 5: Countries heard on 50 MHz
Column 6: Countries heard on 52 MHz

CALL SIGN	1	2	3	4	5	6
VK8GB	42	42			13	
VK2BA	29	29				
VK4ZJB	28	28				4
VK2DDG	25	26		2	12	3
VK3OT	25	25				10
VK2OF	25	25				
VK2VC	24	24				
VK3AWY	22	22				
VK2BNN	20	21				
VK5LP	20	20			6	3
VK3XQ	19	20			1	1
VK4ALM	19	19				
VK3AMK	17	17				
VK4TL	17	17				
VK3NM	16	17				
VK7JG	16	17			2	
VK3AUI	16	17				
VK4ZSH	15	16				
VK4ZAL	14	14				
VK6OX	10	10	1	1		
VK3ZZX	10	10				
VK6RO	9	9	3	3	2	3
VK4KHZ	8	10				

The minimum number of countries confirmed for an operator to commence being listed is five, including VK.

The position on the list is determined by the number of confirmed contacts. Where two or more operators have the same total, those first date listed with that total can only be displaced by

someone having a greater number of confirmed contacts.

The next list will appear in February 1987, and entries will need to be on my desk no later than December 15, 1986. Claimants are reminded that full details of all contacts are required; vis date of contact, time in UTC, call sign of station worked, country, mode, report sent and received, QSL sent and whether received, split frequency contacts should be indicated. Please add your own call sign and date of your claim.

I still reserve the right to ask any claimant for QSL cards to support verification if considered necessary.

Further entries are invited. The fact that you may not have worked as many countries as someone else should not stop you from entering. Someone has to be at the top and positions on the ladder do change from time to time. This time we see John VK4ZJB, moving into third place, he was formerly in position five, while Graham VK8GB, further consolidated his top position by adding two more countries, with one more confirmation still to go to bring his confirmations to 42 countries.

Incidentally, it is interesting to note the call signs of the countries heard by Graham on six metres but of which he was unable to contact. They were WA4TNW/VK1L7 on March 28, 1981; ZS6LN on April 16, 1979; KZ5NW on March 11, 1979; KP4CL on April 3, 1980; ZK1AA on April 25, 1979; HS1YL on May 2, 1980; HI8DIA on February 20, 1982; PJ8EE on March 23, 1982; EL2AV on April 4, 1982 and TI2NA on April 6, 1982. In addition, the following beacons were heard: ZB2VHF 18/11/81; P77THF 3/80 (on many occasions); SB4CY 3/4/80. No stations were worked cross-band 10 metres to six metres.

BEACONS OF THE WORLD

Bill Tynan W3XO, in his QST columns *The World Above 50 MHz* for June 1986, carries a list of known beacons of the world. His list gives 82 beacons between 50.005 and 52.510 MHz. Of these, 56 are below 50.100, with a further 20 in our own area and New Zealand on 51 and 52 MHz. I feel tempted to give you a one-off coverage of this listing for future reference, but will defer the matter for the time being. I note there are no less than eight beacons listed for South Africa.

GENERAL NEWS

During May, I had the opportunity of meeting Gordon VK2ZAB, at his home during one of my travels. His superbly situated VHF site brings out the pangs of envy, situated as he is on the top of a hill at Berowra Heights, with an unobstructed 360 degrees view of the country-side. Just for an exercise, Gordon suggested it may be possible to speak to someone in Canberra, so he fired up on 70 cm and immediately has an S9 contact! Signals were even there from Melbourne and the night was not considered to have been enhanced in any way for propagation. Gordon is regularly in contact with stations over a large area of New South Wales and works into Brisbane as well.

The important point, of course, is the fact that Gordon does in fact have a very good site, but he is using it to advantage and by so doing it is encouraging others to come on and have contacts. One can now also understand why he has been so successful with contacts using aircraft enhancement with his 0 degrees horizon.

In an effort to increase interest in contacts via aircraft enhancement, Gordon sets out the following parameters which, if available, could lead to success using this mode:

1. S2 peak signal considered the minimum; ie -135 dBm;
2. transmitter power 400 watts PEP;
3. antenna gains 20 dBi at both ends;
4. 747 aircraft at 40 000 feet;
5. angle of incidence one degree minimum;
6. receiver limited by external noise only; ie a reasonable noise figure.

All this gives an optimum distance of about 1020 km.

Gordon points out that distance is not far short of the Adelaide to Sydney path and suggests anyone east of Adelaide, with a view not obstructed greater than one degree (or less is even better) should be able to make it to Sydney

with the now fairly frequent 747 flights. The flight has to be such that the aircraft track crosses the signal path; ie Adelaide to Sydney flights are worth trying, but Adelaide to Melbourne are not.

Gordon would be prepared to attempt contacts with anyone dedicated enough to try, but any reduction from the parameters listed drops the signal level accordingly; eg 100 watts PEP is 6 dB down so signals would be S1. The distance also applies regardless of frequency; ie the same conditions apply on 70 cm as on two metres.

So there you are, the challenge is offered. I would like to try but my three degree horizon to the east makes it virtually impossible, but I am sure someone like Roger VK5NY, sitting on his mountain top would have a good chance. Over to readers!

MOUNT GAMBIER CONVENTION

A very successful SERG June Holiday Convention was held at Mount Gambier with attendances up on last year. The weather was generally quite



Winter is nearly behind us and spring is in the offing, when one will be able to enjoy the sunshine. Now is the time to plan a check of your antennas before the spring and summer winds are upon us, also to see how the weather-proofing stood up to the winter rains, sleet, frost and at times around this QTH, the birds.

The solar cycle should start to begin a climb to allow better DX later this year or early next year, although really the low has not been so bad. One has had to search just a little harder for those wanted countries.

I have not made a plea for reports and assistance with the column for a considerable time. However, I would like to see some more reports in the mail each month of what you, the reader, has been hearing or working, so that it may be passed on to your fellow DXers, not only in Australia, but world-wide; as these notes are distributed to a number of overseas newsletters and magazines on a reciprocal basis.

So how about it ladies and gentlemen — some more information please for the column you read!

CONGRATULATIONS

The President of JARL, Shozo Hara JA1AN, was decorated by the Japanese Government in April. The citation, in part read "In recognition of your contribution to the development of amateur radio as President of the JARL for 16 years.

Part of the criteria for the award is that the recipient must have served an organisation for 15 years and be older than 58 years of age. JA1AN is 59.

On behalf of all DXers, congratulations and thanks for all you have done for amateur radio, Shozo.

BAROMETRIC CHANGE

As from May 1, 1986 the Australian Bureau of Meteorology has replaced the readings of barometric pressure from millibars to hectopascals (hPa) to include greater international standardisation of equipment.

The numerical value of each unit is the same — one hectopascal = one millibar and barometers can be read as before by just changing the wording.

Incidentally, this is not the first change as up to 1919, the barometric change was quoted in millimetres due to the pressure change in a tube of mercury.

The change has been given very little publicity, but someone with a sense of humour placed the following advertisement in a West Australian newspaper:

Approach, Marriage

BARR-PASCAL Mr and Mrs Barr are pleased to announce that on May 1, their daughter Millie will become Mrs Hector Pascal. Congratulations Millie.

good for the time of the year and a very extensive events program was conducted. The SERG Trophy was won by Victoria as it was also last year, so VK5 is going to have to get the big stick out if they want to regain the coveted trophy.

The number of entries in the home-brew competition was down on previous years and in judging the entries, I formed the opinion that the work was not as tidy as usual. The winning entry was a beautifully made, two metre cavity filter which was constructed of copper and brass and was one of 26 such devices made by the entrant, Brian VK3AFN.

CLOSURE

As I was closing off these notes the mail arrived and included a letter from Graham Baker ex-VK6GB, now residing in Canberra. Graham confirmed his contact with ZM8OY, which now completes his list of 42 confirmed countries from Darwin. Congratulations! Accordingly, the

Standings List has been amended but the text regarding Graham, which was previously written, has been left as written.

Graham says he has bought a house and is gradually settling in, but so far is not operational on amateur radio.

Although we are at present in the lowest part of the sunspot cycle, I would suggest you still keep an ear on six metres during the coming equinoctial period, when occasional improved conditions result in long distance contacts particularly, out across the Pacific. Of course, November/December/January later this year will be a prime time to also be looking in that direction on both six and two metres!

Closing with the thought for the month: "The hand that lifts the glass that cheers, should not be used to change the gears!" and "A man's reach must always exceed his grasp!" 73 — The Voice in the Hills.

How's DX?

DODECANESE ISLANDS

Due to a licence examination now being able to be taken on the islands, it appears that there could be an increase in activity from this area in the foreseeable future. Apparently 13 new licenses are about to be issued.

BELIZE

From July 1, V3 call signs were effective as follows:

The prefix V31 will indicate a Grade 1 licence and V32 Grade 2 certification. The suffix blocks in geographical order are AA-BZ = Corozal, CA-DZ = Orange Walk, FA-KZ = Belize, LA-MZ = Stann Creek, NZ-QZ = Cayo and PZ-QZ = Toledo.

THE RIGHT APPROACH?

9Q5JW, is noting on the back of his cards — "I am sorry but I have not yet the regular authorisation for transmission because of problems with local administrations delay. This is only to confirm and is not valid for DXCC, WAZ or others." At least everyone knows where they stand and the card is valueless unless authorisation, if granted, is backdated.

ANOTHER PREFIX AND SUFFIX

AZ#ARU is in commemoration of the IARU Region 2 Conference to be held in Buenos Aires from October 20 to 25. The prefix and suffix will be heard until October 31.

WAC UPDATE

The International Amateur Radio Union (IARU), has updated and improved the Worked All Continents Awards program. Two new certificates have been created, one for CW and one for Phone.

The IARU has officially adopted the boundaries of the six recognised continental subdivisions of the world. It is of interest that they issued 137 5-Band Certificates last year, 20 6-Band, 3 QRP and 79 Satellite Certificates amongst numerous other types that were issued.

INTERNATIONAL REPLY COUPONS

International Reply Coupons (IRCs) are now 75 cents each from Australian post offices. They have climbed to 80 cents each in America and there could be another rise in VK shortly.

FRANZ JOSEF LAND

Contrary to a lot of discussion on the 20-metre band, the station EX1P, was operational from Franz Josef Land. QSL via PO Box 88, Moscow.

SINAI DESERT

Beware! SU2B has been active and giving his QTH as the Sinai Desert. He is asking for QSLs to go to Johan, NAPO 30, 3509 VP, Utrecht, Netherlands.

BULLET PROOF VEST AT LEAST

VO9ZZ has left Diego Garcia and is now on a tour of duty in the Philippines. It is his intention to try to

activate Spratly Island next March.

My opinion is that this area should be temporarily deleted from all DXCC listings before another unforgettable experience, that will be more disastrous than the last, occurs or at least until hostilities in this area cease.

I personally feel that he is a very courageous man but also very foolhardy to risk his life, as well as others, to give DXers a new country for their DXCC tally.

NIGER

Alan ex-TU2GC/TU4BR, and his wife Mary ex-TU2GD/TU4BS, have gone QRT. They commenced a two year assignment in SU7land last month and are hoping that the authorities will grant them a licence. So do many DXers!

MAURITIUS

According to a number of reports, licensing in this area is becoming rather difficult for the locals as well as visitors. If this is the trend, it is going to be more difficult to get operations off the ground from 3B6, 7 and 9 and they will gradually climb to being in the much wanted zone of countries for DXCC.

AGGRAVATION

The stories of the aggravation between Frank DL7FT, and the Greek amateurs over the Mount Athos operation seem to be appearing everywhere, as well as being heatedly discussed on various bands.

Unfortunately there is enough aggravation in the world today without it creeping into the hobby we all enjoy.

Probably the whole truth will never be known but if the documentation is accepted by the ARRL, good, if it isn't, let it be written down as experience. Similar occurrences have happened before so let's forget it! Let us get on with DXing and making international friends, in this International Year of Peace.

MOZAMBIQUE

The Mozambique International Amateur Radio Association has been formed recently. Unfortunately it doesn't look hopeful for any activity for a long time though.

A radio station CQUFM, has been heard but it is a 99 percent chance that his paper-work, if any, would not stand up to scrutiny.

However, all may not be lost from this area, as the Mozambique licensing authorities are believed to be inquiring into purchasing monitoring equipment that will cover the amateur bands. Maybe there could be a scant of activity on the horizon, even though it may be very distant.

MARION ISLAND

This island will not be heard this year as the working party has departed with no amateurs in the crew.

Next year is another hope, as service of one

year on the island counts the same as their compulsory National Service.

I think I know which alternative I would be taking if placed in a similar predicament — learning to become an amateur, passing the exam and putting my name down fast.

4U1VIC AND THE HEAT IS ON

The controversy over whether 4U1VIC, should have separate country status for the ARRL DXCC Award is unfortunately heating up. Reprinted below is the April editorial from *QSP*, the monthly journal of the *Oesterreichischer Versuchssenderverband (OVSV)*.

"You will remember that we (the Austrians) have already announced several times in *QSP* that 4U1VIC could become recognised for the status of a separate DXCC country. Logically, as the Vienna International Centre is an extraterritorial area and is recognised as the third centre of the United Nations, the analogy with 4U1UN and 4U1ITU is clear — or is it? At least to a European's modest thinking, it would seem so.

"It is as inexplicable for the Austrian 'relatives' of 4U1VIC as for the entire European DX community in general that the ARRL (or the internal DXCC organisation) has managed so far considerable efforts in preventing country status for 4U1VIC. As this appeared to not be enough to block the status, the DXCC rules were then changed to apparently exclude 4U1VIC.

"We feel that this is a special insult in that ZC4 was recognised as a country under conditions not unlike that of the United Nations. We do not really know what is behind this action. It is certain that some American amateurs have voiced their opinion to the ARRL, but unfortunately without success.

"In his justified rage over this matter, the first President of the Vienna International Radio Club, (Dr Horst Eisenlohr OE3OLW ex DL9OL), in a personal protest to the ARRL actions, has returned his DXCC No. 5972. It is not surprising that this scientist, with almost 25 years in the service of the United Nations, is beginning to doubt if the previously so exemplary ARRL is still what it once was.

"We can, as the OVSV, only give our amateur friends at 4U1VIC, our moral support. It is hoped that someone at the ARRL will begin to understand that the ARRL is digging its own grave, in that it is destroying its own international reputation, as well as that of the DXCC.

"Apparently a deserted island of rocks with often a doubtful country relationship has more worth than a internationally recognised major location of the United Nations. Maybe an American DXpedition to 4U1VIC, sponsored by a well-known DX Association, could bring more public exposure?

"Please help to promote democratic conditions in this matter: in QSO with Americans, ask them when the ARRL will finally grant DXCC status to 4U1VIC.

"Signed: Dr Ron Eisenwagner OE3REB,
"President, Oesterreichischer
Versuchssenderverband (OVSV)"

My personal comment is that I don't feel I am qualified even with all the facts at hand, to make judgment of who is right or wrong but I do have one question, why was Rule 5, which encompasses this problem, changed after 4U1VIC's application was purportedly submitted for consideration? What is fair to one is fair to all and as I have previously noted in this column, either allow 4U1VIC in or delete all the others that do not meet the criteria as the wording now stands.

ANTIPODES

Tony KLYAF, a member of the WIA, had the pleasure of a visit from Graham VK0GC. Graham is presently touring America in a Camper Van.

Tony's QTH is Kodiak Island, which is very close to being the antipodes of Macquarie Island, where Graham was located. It is thought that they did have a QSO during Graham's stint on the island, but it is not known for sure.

A LITTLE HUMOUR

Ever been in a big pile up or a net operation for a rare station? The stations before you are giving the much wanted station their families life history. Well a poem written by W4UP for CQ magazine sums it all up in saying:

Surely there's a special place in hell,
Full of chains and whips of heavy leather,
For those in a pile-up, contest style,
Must send name, address and current weather.

Operators, one and all, remember this the next time you get to work that much wanted station please — because I might be next in line!

SENEGAL

The following Senegalese prefixes represent the 'countries' as follows:

6W1 — Cape Vert, 6W2 — Casamance, 6W3 — Diourbel, 6W4 — Fleur, 6W5 — Senegal Oriental, 6W6 — Sine-Saloum, 6W7 — Thies and 6W8 is Loga.

A PUZZLE OR CONFUSION?

Bob Winn W5KNE, Editor of *QZ DX* poses the following ... "Here is an interesting puzzle, the Golan Heights, a 400 square mile plateau, which was originally a part of Syria, was captured by Israel in 1967, and annexed by Israel in 1973, it is patrolled by United Nations peace-keepers, but for DXCC purposes it counts as Syria." Personal comment is why? ... VK3AH.

SOVIET UNION

Soviet Union amateur prefixes can be a mystery. Following is a list of prefixes and to what area they denote.

RA, RN, RV	Russian SFSR.
RW, RZ	Russian SFSR.
UA, UN, UV	Russian SFSR.
UW, UZ	Russian SFSR.
PR, PT, PY	Ukrainian SSR.
UB, UT, UY	Byelorussian SSR.
RC, UC	Azerbaijan SSR.
RD, UD	Georgian SSR.
RF, UF	Turkmen SSR.
PG, UG	Armenian SSR.
RH, UH	Uzbek SSR.
RI, UI	Tadzhik SSR.
RJ, UJ	Kazakh SSR.
RL, UL	Kirghiz SSR.
RM, UM	Moldavian SSR.
RO, UO	Lithuanian SSR.
RP, UP	Latvian SSR.
RQ, UQ	Estonian SSR.
RR, UR	

From L to R: Philip VK3KAC, Peter VK3DXD, P29PW, Susan VK3PSO and John VK3CWW/P29JW.



A FAMILY PROFILE

It is not uncommon these days to find family groups with a common interest in Amateur Radio. One of the wonderful concepts of our hobby is the way it caters for such a wide variety of interests within the overall context. This family finds the radio to be an excellent means of keeping in touch with other — sunspots and band conditions permitting.

It all started in 1950, when John, encouraged by Brian VK5CA, gained his AOCP and became VK5WY. John at present is the Senior Mining Engineer for Bougainville Copper Limited in Panguna, Papua New Guinea and he finds time for other varied interests such as photography, sailing, silversmithing and is a keen 'home brewer', an interest he shares with his son Peter.

Philip, (Sue's husband and John's son-in-law), is an electrical engineer with the State Electricity Commission in Victoria, at the Hazelwood Power Station located in the Latrobe Valley. They live on a small farm overlooking the valley, where they breed sheep. Philip's other interests include photography and apiculture and Philip finds time to be an active member of the volunteer Country Fire Authority.

Sue is a librarian, teaches Indonesian studies and craft and has other interests such as reading, needlework and gardening. Both Sue and Philip enjoy bushwalking and cross country skiing when time permits.

Peter's life is electronics, and he is a keen constructor who enjoys discussing his projects whilst talking to his father in Panguna and is studying Electronics Engineering in Melbourne.

John is still hopeful that his youngest daughter Cathy, will take up the hobby. Cathy has passed the CW, but has temporarily 'relaxed' on her theory studies due the pressure of examinations of her final year at High school.

John's wife Noreen and the other members of the family tolerate the hobby patiently, John admits, but they have many varied interests in the art and craft field, showing very little inclination to the pastime we all enjoy.

BITS AND PIECES

Phil VS6CT, hopes to be operational for a short stint from KP2 this month. "9U5JB, Jim 'Bull' Bullington, went QRT on July 7. Where will he become Ambassador next?" RFOFWW, runs a net on Wednesday and Friday of each week on 14.195 MHz. "Visiting Japan late this month — then don't miss the 'Amateur Fair' and the Tokyo DX Convention in Tokyo on the 22, 23 and 24th, which will be held at Harumi." Market Reef could have a prefix different to OJ0, for future DX operations. "Some JA operators are keen to operate ZA with the assistance of BY operators this year. A possibility?" "Manila 3C1MB, is still quite active from Equatorial Guinea. If you are

VK ZL OCEANIA CONTEST

1985 Results & 1986 Rules

Jock White ZL2GX
NZART CONTEST AND AWARDS MANAGER

Greg Williams VK3BGW
WIA VK/ZL/O CONTEST MANAGER

Following are the results of the 1985 VK/ZL/O OCEANIA CONTEST. There was certainly a lull in propagation, particularly over the phone weekend. This was the 50th running of the contest and also celebrated the 75th Anniversary of the WIA. To commemorate these events, the WIA Executive provided special awards in the form of medallions for the winners of the contest.

In addition, Fred Mackiewicz, of Am-Comm Electronics, provided a special prize of an Antenna Rotator to the top Australian scorer in the contest. The rotator will shortly be presented to VK2APK.

The logs were of a generally high standard, however some were not acceptable. It amazes me that someone can operate for 24 hours in a contest and work hundreds of contacts and then skimp on the paper work. The logs are the only information the Contest Manager has to work from. If call signs are unreadable and there are too many un-noted duplicate contacts, then these contacts must be deleted from the log. Too many of these deletions and the log is unacceptable. Refer to the Contest Column this month for more information on disqualification of Contest Logs.

When signing a declaration that you have abided by the rules, then do so! Don't declare that you have abided by the rules and then break them. Declare that "I abided by the rules except I did not have a separate log beginning at 011 for

each band", or "I calculated my score on the method I think best and not as stated in the rules." At least this is an honest approach. Take a carbon copy of your log by all means, but keep it as your record and send the original in. Trying to read the 20th page produced by the one piece of carbon paper is very difficult and can lead to the disqualification of your log.

This will be my last year as VK/ZL/O Contest Manager. I can hear cheers of joy from many, but to those who are cheering I ask this one question — where were you when no one could be found to do the job? I have enjoyed the experience, but did not appreciate the amount of work involved and would not recommend the job to anyone who has a family and other commitments.

To those who helped me and sent encouraging comments; thank you. To those who sent criticism and other comments, thank you too. I appreciate that too, for it told me how people felt and thought. To those who hassled a whole lot of people, including abusive phone calls to my wife, no thanks at all! If you have a grievance with me, talk to me, not others who have no control over what is happening.

Now to the results. The call signs in bold type will receive an award. Where there was little competition or little effort required, no award has been made. A station can receive only one award for each mode. The numbers in the "band"

column are the number of contacts followed by prefixes, see the rules on page 22, September 1985, Amateur Radio for the method of calculating the final score. The DX results should be in next month's AR and once they and the awards are out, I look forward to having some operating time again.

All check logs will be acknowledged with the DX Results.

SOAP-BOX

Propagation conditions on 14 MHz and the number of stations operating were most disappointing — VK2APK

When was 16 metres? Found that the band got into the television on 16 metres just when the band opened to Europe, gee did the wife growl! — ZM1IM

High noise and QRM resulted in reports like 3991 — VK3AMD

Conditions were very bad ... only entered to show appreciation for running this contest — VK2APK

No one seems to want the year lost time due to over-sleeping, power failure, solid QRM and then conditions were atrocious ... I quit with a splitting headache — VK2AOF

Strange that nobody was heard on 160 metres — ZL1BXW

He has promoted more activity from VK2ZL on 160 and 80 metres — ZL1BN

I only started to give out a few numbers, but the excitement and enjoyment increased ... — ZL4BO (Welcome to contesting).

AUSTRALIAN PHONE SECTION — 24 hours

CALL SIGN	160	80	40	20	15	10	TOTAL
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ALL BAND

VK2APK	15.8	99.33	164.98	134.73	91.45	0.0	623 482
VK2APK	33.10	85.21	158.113	75.45	70.47	0.0	697 431
VK5FO	1.1	0.0	304.97	118.57	107.67	1.1	436 875
VK2PS	37.13	16.6	10.10	78.38	39.22	0.0	99 434
VK4BKM	0.0	1.1	0.0	180.93	40.22	0.0	31 320
VK4KWO	0.0	33.9	0.0	0.0	36.25	0.0	13 668
V13SM	0.0	8.5	13.13	26.18	0.0	0.0	6 156
VK3DM	0.0	26.11	0.0	8.6	0.0	0.0	4 556
VK6ATE	0.0	6.5	0.0	46.29	0.0	0.0	3 604
VK5AGX	0.0	16.7	0.0	10.10	0.0	0.0	2 890
VK2AC	0.0	2.2	0.0	17.14	14.13	0.0	1 885

SINGLE BAND

VK4SF	0.0	0.0	38.30	0.0	0.0	0.0	5 700
VK4PJ	0.0	0.0	0.0	124.77	0.0	0.0	9 548
VK2ABC	0.0	0.0	0.0	37.25	0.0	0.0	925
VK4KAE	0.0	0.0	0.0	0.0	18.10	0.0	360

AUSTRALIAN PHONE SECTION — 8 hours

CALL SIGN	160	80	40	20	15	10	TOTAL
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VK2BQS	11.7	30.10	0.0	49.28	71.42	0.0	61 857
VK6RG	2.2	6.4	7.7	129.83	0.0	0.0	25 344
VK1LF	1.1	30.12	0.0	0.0	0.0	0.0	4 160

NEW ZEALAND PHONE SECTION — 24 hours

CALL SIGN	160	80	40	20	15	10	TOTAL
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ZL1AQBQ	0.0	157.92	270.129	220.149	0.0	0.0	1 161 800
ZL1AQBQ	39.17	125.52	108.61	239.143	118.50	0.0	1 044 433
ZL1AQBQ	22.10	88.41	77.62	27.22	0.0	0.0	233 820
ZL3HT	18.7	54.21	0.0	14.10	0.0	0.0	35 646
ZM1IM	0.0	12.9	10.9	61.34	5.5	0.0	13 452
ZL3TX	17.6	28.12	0.0	0.0	0.0	0.0	11 160

SINGLE BAND

ZL4BD	0.0	99.70	0.0	0.0	0.0	0.0	69 300
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NEW ZEALAND PHONE SECTION — 8 hours

CALL SIGN	160	80	40	20	15	10	TOTAL
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ZM2AFY	0.0	57.33	0.0	0.0	0.0	0.0	18 810
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AUSTRALIAN CW SECTION — 24 hours

CALL SIGN	160	80	40	20	15	10	TOTAL
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VK2APK	8.4	60.19	227.124	313.160	116.62	0.0	900 360
VK2APK	0.0	24.15	403.197	149.72	111.56	0.0	892 840
V14XA	0.0	18.10	206.100	268.127	149.67	1.1	542 595

NEW ZEALAND CW SECTION — 8 hours

CALL SIGN	160	80	40	20	15	10	TOTAL
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ZL1BXW	0.0	11.10	134.95	14.13	39.27	0.0	126 440
ZL1HV	0.0	6.4	7.7	100.56	59.28	0.0	29 735

There were no Single Band entries received in this category.

The following logs were rejected as unacceptable or late — VK5MS and VK5BJA.

VK ZL OCEANIA DX CONTEST — Rules for 1986

This year the Contest will commemorate the 60th Anniversary of NZART.

FOR OVERSEAS ENTRANTS

1. a. SSB — Within a 24-hour period from 1000 UTC on Saturday, October 4, to 1000 UTC, Sunday, October 5.

1. b. CW — Within a 24-hour period from 1000 UTC on Saturday October 11, to 1000 UTC, Sunday, October 12.

Special conditions for both SSB and CW — During this time a maximum of 12 hours operating time will be done — in one hour blocks — based on the "even hour to the even hour" in UTC; eg 1000 UTC to 1100 UTC # 1300 UTC to 1400 UTC, etc with minimum periods of one hour.

1. c. RECEIVING — SSB and CW combined in above times (maximum total of 24 hours).

2. Only one contact per mode per band is permitted. All bands may be used except WARCPbands.

3. Scoring: For stations operating outside Oceania, score two points for each contact with VK/ZL or Oceania stations. Oceania stations score two points for all contacts.

Final Score: Multiply total QSO points by the sum of all VK/ZL/O prefixes worked on all bands. (The same VK/ZL/O prefix worked on a different band counts as a different unit). NOTE: Oceania stations are those which qualify as Oceania for IWC.

5. Ciphers: Five or six digit numbers composed of the RS/T report plus a three digit sequence number beginning at 001 and increasing by one for each QSO on that band.



INTERNATIONAL TRAVEL HOST EXCHANGE

The number of participants in the IARU International Travel Host Exchange program is expanding. The latest list received from the ARRL International Programs Manager, Naoki Akiyama J1V1RQ/N1CIX, is printed below.

Members of the ITHE program are willing to either exchange accommodation or to host visiting amateurs. If you would like to participate in this program or desire further information, please write to the Federal Secretary, WIA, PO Box 300, Caulfield South, Vic. 3162.

Australia

William Wells VK1WB^W.

Austria

Enrico Schuerer OE1EQW^W. Mr and Mrs Horst Sommer OE3QOW and OE3YT^W.

Canada

Kenneth Pine VE1BAK^W. Mr and Mrs John Franklin VE2EDN and VE2EDOF. Tom Kennedy VE3NKK^W. Mike Goldstein VE3GNN^W. Mr and Mrs Vic Cronin VE3LFS and VE3LJF^W. Blair Shaw VE6AGH^W. Arnold Rivett VE6AXB^W. George Cserenyi VE7CLZ^W. John Foss VE7ML^W.

France

Guy Legendre F6GRU^W. Alain Bignon F6GWX^W.

Germany (FRG)

Heinz Lange DL7CL^W. Heinz Reiss DJ2EA^W. Heiko Damm DL9FA^W. Hedwig Chemelewski DG4MCT^W. Gerhard Eberlein DF2NR^W.

India

M G Karnik VU2CK^W. Joysee Mukherjee VU2JB^W. Mukesh Chandra VU2MCC^W. V Natraj VU2RNY^W.

Japan

Kaoru Oeda JA6PRM^W. Tetsuo Okazawa JH1FLS^W. Katsumi Kosugi PJ1OZ^W. Tomio Shimada JA6QW^W. Tetsuji Yamada JA1EQZ^W. Mariko Ichikawa JP1TV^W. Nagao Ogawa JI1UXF^W. Tatsumi Inoue PJ1CH^W. Kazuhito Tokuda JG1JDZ^W. Hidemitsu Kasutra JR1UTS^W.

Hiroshi Oyama PJ1AAZ^W. Masao Kawakami JI1NKS^W. Mitsuo Ogura JR1CXW^W. Yukawa Hayashi J1N1HL^W. Kenichi Morimoto JA1GAL^W. Yutaka Saka JA2GAE^W. Shinichi Ohkawa

6. Logs: Separate log sheets should be used for each band and for SSB/CW.

Logs should show: Date, Time in UTC, Call of Station Worked, Ciphers sent and received.

Underline each new VK/ZL/O prefix. State QSO points claimed for each band.

State VK/ZL/O prefix claimed for each band. Attach a Summary Sheet showing: Call Sign, Name, Address, Total QSO Points Claimed on all bands, Total VK/ZL/O Prefixes Contacted on all bands, Total Points Claimed and a declaration stating that all rules were observed.

Logs should be posted to NZART Contest Manager, ZL2GX, 152 Lytton Road, Gisborne, NZ, to arrive prior to February 15, 1987.

7. SWLs: A VK/ZL/O station must be heard in a contest QSO. Logs are to be set out as for the transmitting section.

8. Awards: Separate awards will be issued for SSB and CW.

a. A plaque for the top scorer in each continental area.

b. Special large coloured certificates showing Mount Cook (New Zealand's highest mountain) will be awarded to the top scorers in each country.

c. Participation certificates will be issued to all other on request — one ICR for postage please.

A copy of relevant results are available upon request — one ICR please.

FOR VK/ZL STATIONS

Check with overseas rules. Rules 1, 2, 5, 6 as for Overseas Stations. Exception... Rule 6.

1. VK/ZL stations are permitted to contact each other only on 160 and 80 metres. VK/VK, ZL/ZL and ZL/VK contacts are all permitted on these two bands.

4. Scoring: Different points are allocated for contacts on different bands as follows:

160 metres — 20 points

80 metres — 10 points

40 metres — 5 points

20 metres — 1 point

15 metres — 2 points

10 metres — 3 points

TOTAL SCORE will be the total QSO points multiplied by the total number of prefixes worked. The same prefix worked on a different band is counted.

NOTE: K1, W1, AA1, N1 etc are all different prefixes. W1A/AA/6 would count as W6 and not as W1.

6. CHANGE ... logs to arrive by December 5, 1986.

7. SWL Section: As for overseas but ... VKs must hear and log ZL or other stations (no VK stations).

ZLs must hear and log VK or other stations (no ZL stations).

VKs/ZLs do not log each other.

8. Awards: Separate awards will be issued for SSB and CW.

a. Trophies to be announced by NZART and by WIA.

b. Special large coloured certificates showing Mount Cook will be awarded to the top scorers in each prefix area and to the top scorers on each band.

c. Participation certificates will be issued to all other on request — one ICR or 50 cents for postage, etc.

73 and good operating

Jack White ZL2GX

NZART Contest Manager



International News

JH2SGC^W. Yukio Sugimoto JA2AJF^W. Yasuyuki Suzuki JA2BEF^W. Ryuchi Sakai JA2GSO^W. Kiyotaka Hagiwara JA2ITT^W. Tsunemitsu Yagi JJ2DGE^W. Ichiro Hoshina JA2WY^W. Mr and Mrs Masatoshi Yasuda JE2HCG and JJ2FSY^W. Tetsu Harada JF2NNE^W. Takeyoshi Nakai JA3JHY^W. Takashi Oki JA3BLC^W. Masao Sano JA1ENH^W. Masao Mochizuki JI3TIA^W. Akio Nakatani JM3CYH^W. Hiroshi Tsuji JG3RPS^W. Sadao Ikeda J3JUN^W. Tadao Mikado JA2ENP^W.

Kiyotaka Karashima JE4CCH^W. Shigeru Ueda JA4OZH^W. Masayo Kurokawa JRMVX^W. Kunihiro Furumi JA6CNU^W. Gen'ichi Sato JA6MBW^W. Akira Furukawa JG6FAJ^W. Kaichiro Imaamura JA6GW^W. Ichii Mukai JA6VFK^W. Toshiohiko Ima JH6TE^W. Koichi Osoja JA6ERV^W. Takashi Tomiyama JA6LDD^W. Tatsuko Shirakawa JAS7TU^W. Naoko Seito JA8-JLE^W. Yoshiaki Nishizato JH8MT^W. Eiichi Takahashi JA9OV^W. Ryu Fukuda JA9CCG^W. Shin'ichi Watanabe JA0DAI^W. Hirokazu Murata JH0KJM^W.

JB9CKS^W. Mr and Mrs Kurt Kruesi HB9CVF and HE8SNQ^W.

Syria Technical Institute of Radio YK1DF^W.

United Kingdom Robert Heselwood G4UVW^W. Sam Kennard G4OHX^W. Owen G4PSH^W. Elaine Green GOATS^W. Chestnut and District Amateur Radio Club G4ECT/G6CRC^W. Roger Brown G3LQP^W. Richard Schiller G14WTC^W.

United States Mr and Mrs Phillip Sager WB4FDT and KB4MBF^W. David Chase KA1IUC^W. Richard Baldwin W1RUP^W. Jim Filton W1FMR^W. Georges Vedie KA1LQW^W. Barbara Rose KA1JU^W. Richard Marsino Jr. Mr and Mrs Edwin Pores WA2ZBV and WB2URP^W. Mr and Mrs Herbert Sweet K2GBH and WA2KCL^W. Alvin Peachman WB2NFD^W. Lynn Finch W2MJS^W. Mr and Mrs Anthony Failla K3QXW^W. Leon Hance W4YFZ^W. Frank Butler J4W4RH^W. Mr and Mrs Stephen Gross N4PZ^W. Neil Foster KA4MJF^W. Robert Foy WA4LZL^W. William Wiggins N4BMR^W. Wilbur Dubrow N4KEY^W. Carol Garner NSFYZ^W. Mr and Mrs Al Markwardt W5PXH^W. Jackson Daugherty NSFKF^W. Mr and Mrs Monty Bancroft W6NJV^W. Mr and Mrs Jim Price K6ZB and N6KIM^W. Mr and Mrs Nick Hauck K6QPE and K6SYB^W. Ross Forbes WB6GJF^W. Gail Brownell KB6EZB^W. Scott Rathjen W7SWM^W. Mr and Mrs James Eldredge K6TL^W. Roy Blankenship W6RT^W. John Tiernan KA6LNC^W. Jack Allen N7DMP^W. Mr and Mrs Alan Roel K07B and KA7QEY^W. Phil Gray KA7TWP^W.

Joe Frank K7MNP^W. Mr and Mrs Austin Quinn WB8XSM and K4ALMFB^W. Bill Wilson WA8YTM^W. Mr and Mrs Stuart Oseman WA9ZPL and KA8LHF^W. Alex Scherer W5P^W. Rollen Brand K9VO^W. Lee Steele K0UKC^W. Mr and Mrs Bob Ludtke K9NWW^W and N9NBY^W. Bob Koenig KB2J^W. Venn Skretvedt KADK9W^W. Mr and Mrs Lee Bergen W0AR^W. Mr Ed Eichler WB0BCB^W.

A=Arabic; D=Dutch; E=English; F=French; FI=Finish; G=German; H=Hungarian; HI=Hindi; I=Italian; J=Japanese; K=Korean; N=Norwegian; R=Russian; S=Spanish; Sw=Swedish



Contests



CONTEST CALENDAR

AUGUST

- 2- 3 Tenth WA Annual 3.5 CW Contest (Rules this issue)
- 9-10 European CW Contest (Rules this issue)
- 16-17 Remembrance Day Contest (Rules July issue)
- 16-17 New Mexico QSO Party
- 16-17 SEA-net SSB Contest (Not Official, see below)
- 23-24 All Asian CW Contest (Rules June issue)

SEPTEMBER

- 6- 7 Tenth WA Annual 3.5 SSB Contest (Rules this issue)
- 13-14 European Phone Contest (Rules this issue)
- 20-21 Scandinavian CW Activity
- 27-28 Scandinavian SSB Activity

OCTOBER

- 4- 5 VK/ZL Oceania Phone Contest (Rules this issue)
- 4- 5 IRSA World Championship
- 11-12 VK/ZL Oceania CW Contest (Rules this issue)
- 15-17 YLRL Anniversary Party
- 18-19 1986 Fall CW Contest (Rules this issue)
- 24-26 CARTIG RTTY Contest
- 25-28 CW/WDX Phone Contest
- 29-31 YLRL Anniversary SSB Party

NOVEMBER

- 8- 9 Australian Ladies Amateur Radio Association Contest
- 8- 9 European RTTY Contest (Rules this issue)
- 29-30 CO WDX CW Contest

CONTEST DISQUALIFICATION CRITERIA

A standard approach is taken to the disqualification of logs entered in all of the contests which come under the direct control of the Federal Contest Manager appointed by the Federal Executive.

A perusal of these criteria will show them to be quite fair and well thought out. They are based on those used by the ARRL in administering their contests. It is suggested that you take note of this particular issue of the magazine for reference to these general rules in the case of all contests for the ensuing year. Details are as follows:

DISQUALIFICATION — An entry in WIA conducted contests may be disqualified if, upon checking of logs, it is necessary that the overall score be reduced by more than two percent. Score reduction does not include correction of arithmetic errors. Reductions may be made of unconfirmed QSOs or multipliers, duplicate QSOs or other scoring discrepancies. An entry will be disqualified if more than two percent duplicate QSOs are detected as being claimed for credit. For each duplicate or mis-called copy sign removed from the log by the Contest Manager, a penalty of the deletion of three additional QSOs of equivalent value to the offending claim may be applied. The penalty will not be considered as part of the two percent disqualification criterion. If a participant is disqualified under these above-mentioned provisions that operator will be barred from entering the contest for that particular mode in the ensuing year; eg disqualification from the 1986 RD Contest, Phone Section will prohibit an entry for the 1987 RD Contest, Phone Section. However, participation in the 1987 RD Contest's CW Section would be allowed.

Logs which are very untidy, illegible or incorrect in layout to a major degree may also be disqualified. The call signs of disqualified participants may be listed in *Amateur Radio* magazine, together with the contest results.

SEA-net SSB CONTEST

The rules of this contest were not received in time for publication in the July issue of this column. The CW section therefore has come and gone. It is a pity that the organisers have seen fit to hold the SSB section on the same weekend as the Remembrance Day Contest; however, our contest is, from my point of view at least, the major of the two. It is held on the same weekend every year, however one cannot expect that all overseas contest organisers will be aware of that. I know there are various VK operators who join in SEA-net on a regular basis — I used to do so myself.

Anyone who wishes to try the SEA-net contest will most likely suffer severe QRM due to the Remembrance Day Contest. Last year both the SARTAG RTTY and the KCJ Contests were held on the same weekend as the Remembrance Day Contest. This year I have heard nothing of either contest. With the large number of events which occur it is quite difficult keeping track of them each month.

I do try to bring you the rules for as many contests as I can, within reason, and at times must make a value judgment as to whether or not a particular contest warrants publicity or has any major attraction for Australian amateurs.

RULES FOR SEA-net — In view of our close relationship with the other SEA-net countries, here are the details of the SEA-net SSB Contest — perhaps next year the two will not clash!

TIME — This has not been quoted in the rules which I have to hand. The date is August 16-17 and I would suggest that you may be able to sort out this problem by contacting some stations in the SEA-net area.

OBJECT — Is to contact stations within the SEA-net area. The same station may be worked once on each band. Cross-band or Cross-mode contacts are not allowed. Multi-operator stations are limited to one signal during the same time period.

CLASSES — Single operator, single and all band, and multi-operator all band only.

EXCHANGE — RS/T, plus a three figure QSO number starting with 001.

SCORING —

Stations outside SEA-net area: Contacts with stations within the net area with the following prefixes — 20 points on 160; 10 points on 80 and 40, four points on 20, 15 and 10 metres. Prefixes: DU, HS, YB, 9M2, 9M6, 9M8, V91, V85. Contacts with stations outside the net area: 10 points on 160; five points on 80 and 40; and two points on 20, 15 and 10 metres. Contacts between stations outside the net area have no value. There is a multiplier of three for each net country worked.

Stations within SEA-net area: Contacts with stations outside the net area — 10 points on 160; five points on 80 and 40; two points on 20, 15 and 10 metres. Contacts between stations within the net area: six points on 160; three points on 80 and 40; one point on 20, 15 and 10 metres. Contacts with stations in own country have no value. There is a multiplier of two for each net country worked; and three with country outside net area.

FINAL SCORE — Total QSO points times the sum of the multiplier.

AWARDS — The three highest scoring stations on CW and on SSB will receive plaques. There are other awards for each class.

Entries must be received no later than October 20, by the CEBU Amateur Radio League, PO Box 304, Cebu City, Philippines 6401.

SEA-net AREA PREFIXES — A35, A51, AP, BV, BY, C21, DU, FK8, FR, FW8, HL, HS, H44, JA, JT, JD1, KA, KC6, KH2 to KH0, KX6, P29, S27, ST7, T2, T3, VK all, VQ8, V85, V86, VU2, VU7, XU1, XE5, XW8, XK9, XZ2, YB, YJ8, ZK, ZL all, 3B6, 7, 8, 9, 3D2, 4S7, 5W1, 8Q7, 9M2, 6, 8, 9N1, 9V1 and 129.

As Federal Contest Manager, but that I have a duty to not only make out rules, check logs and carry out all the other mundane tasks which are

Ian Hunt VK50X
FEDERAL CONTEST MANAGER
Box 1234, GPO, Adelaide, SA. 5001

the lot of the Contest Manager, I believe that I must undertake other activities in connection with this office.

The Contest Manager should do as much as he can towards becoming the recognised expert on contesting in its various forms. He should be available as a resource to other officers of the Institute and be able to provide sound and informed advice when it is needed.

Such matters as helping to formulate policy, making suggestions as to what actions should be carried out to improve contesting for the benefit of all amateur radio operators, corresponding with others, including the Federal Office and Councillors, and doing my best to promote discussion amongst members on contest matters are all part of this approach.

In these notes you will read of another's opinion on contest matters and also some personal opinions of my own. I would like to see this column become a forum for informed and logical discussion of contest matters and other subjects allied to amateur radio, apart from the privilege we have of expressing opinion through *Over to You!*

In line with the approach just outlined, in late May I circulated a Discussion Paper dealing with various aspects of VHF/UHF operation in contests. I now provide a copy of that paper with the intent of keeping you better informed as to what is going on with the Contest Manager and what is being suggested. Copies of this paper were forwarded to all Federal Councillors and the Federal Executive.

VHF/UHF ASPECTS OF CONTESTS — A DISCUSSION PAPER

It is suggested that we look at the history of contests within Australia and see just what has occurred with regard to VHF/UHF participation.

NATIONAL FIELD DAY

Following WWII, this contest was instituted with HF operation being utilised. Later as VHF operation became easier to achieve and, thus more popular, such operation was added. Problems have existed with this situation and various attempts have been made to overcome them.

As VHF was obviously not a popular aspect of the Field Day, I deleted the VHF-only Section from the contest. At the same time, I made an attempt to attract more operators to VHF by including a provision for multipliers for distance worked on VHF. I received a fair amount of criticism for this approach, which, upon consideration, was possibly warranted. I then modified the rules by reinstating VHF as a separate section. The application of multipliers for distance concept was retained. This resulted in a minimal increase in entrants in the VHF section.

Thus it can be seen that problems exist with VHF included in this contest and that the action taken does not solve the problems that exist.

REMEMBRANCE DAY CONTEST

This contest was inaugurated as an HF contest only. VHF was added. Now HF and VHF are separate categories. This approach may have solved the difficulties which have existed although there does appear to be less interest from VHF only operators in this contest.

This contest should remain as it is, at least for the present.

Ron Henderson VK1RH, is currently looking at some of the other aspects of this contest.

ROSS HULL MEMORIAL CONTEST

This contest is held during the summer period in which the best VHF/UHF propagation conditions might be expected. As a general contest it receives very little support.

It basically only exists as an exercise for home stations which are highly specialised in the field of VHF through to microwave frequencies. These stations are generally fairly elaborate with large antenna systems and a wide range of equipment. The contest in its present form is virtually an "elitist" contest.

There have been many changes to the rules over a period of years in attempts to make it more attractive. Such attempts have resulted in still no support for this contest as well as severe criticism of the various Federal Contest Managers concerned.

There have been many complaints received regarding the unfairness of the rules and scoring systems, that it is biased towards particular geographic locations, is only for specialists and operators who can devote days of operation to the contest, etc, etc.

The Federal Contest Manager has suggested in his report to the 1985 and 1986 Federal Conventions that consideration should be given to disbanding the Ross Hull Memorial VHF/UHF Contest in view of the minimal support received.

It is understood that Jon Gelston VK7JG, who is the VK7 Federal Councillor, may be looking at this problem.

SUGGESTION

I would suggest that difficulties mentioned above could be overcome by completely changing the approach to VHF/UHF Contest Sections as follows:

1. Delete VHF from the John Moyle Memorial Field Day Contest altogether.
2. Delete the Ross Hull Memorial VHF/UHF Contest from the calendar in its present format.

3. Implement a totally separate VHF/UHF Field Day Contest (ARRL and RSGCB do this) and use this as a base for the Ross Hull Memorial Contest.

This "new" contest should appeal to the majority of keen VHF operators and contesters and would allow entrants to participate on any scale they wished. The contest would be renamed the *Ross Hull Memorial VHF/UHF Field Day*.

This document is circulated at this stage for discussion purposes and comment only. It is proposed also, that details of this paper be included in the *Contest Column* in *Amateur Radio* magazine so as to allow as wide a discussion as possible to take place.

Signed: Ian J Hunt VK5QX
Federal Contest Manager

May 28, 1986.

I intend from time to time to feature a letter from a member who has written to me on the subject of contests. In this way I hope to encourage a wider discussion on contest matters which should be of benefit to us all. If you have any ideas along contest lines which you wish to air just drop me a line. You can also provide a photograph of yourself and/or station that would be of interest too.

This month I have provided such a feature with Tom VK4OD, being the intrepid writer. Many know Tom better under the call sign VK4NUN. He has been a very keen contester and has done very well over the years that he has been operating. Congratulations on your new call sign, Tom.

Tom's letter is virtually self-explanatory and he quotes as follows:

"I would also like to comment about Bob VK7NBF whose letter you discussed in AR, May. I must support him in one sense re the CW part. It is not helping the CW Novice in a contest with only 10 kHz for CW and usually up here there are a couple of Taiwanese fishing boats with S9 signals in that segment! I would like to see — and I have said this before — that Novices on CW be allowed for the contest only a bit larger segment of the band — say 3.520 to 3.540 MHz or something of that order."

"However, I cannot agree with his assertion that full calls with 100 watts tend to blot everyone out. I have been on most Novices contests for five years on SSB and CW, with good success on CW and have found very few full call stations giving any trouble — not too many on. I get plenty from Alan VK4VAT, with his big country antennas and 30 watts! His [mind you, he probably curses me too].

"The only other comment which comes to mind and also one which I have spoken out about before is the WIA plug "Use our bands or lose them". Well, any evening the Novice Section of 80 metres is bedlam, but from 3.625 right up to the DX-window there are hardly any stations. There is



Tom VK4OD ex-VK4NUN. Tom's wife suggested when she took the photograph; "Put your fist on the key, 'cos its never off it!"

plenty of intruders — well not exactly — but there is tons of room for pleasant QSOs. I would say from my observations, that about half the stations in the Novice Segment are full call operators, which is only understandable with the number of club, award and special call nets, in which both class of licensee naturally partake. Hence, the same old story, a bit more space to encourage the Novice Operator."

Tom then goes on to comment about the 21 MHz band where the American Novice can go down to 21.100 MHz. "This section, 21.100 to 21.125 MHz, was, and still is, virtually devoid of any VK operators."

He continues regarding this band: "About five years ago, my club — the Sunshine Coast ARC — put a motion to the then WIAQ Workshop, proposing that Novices on CW be given another 25 kHz down to correspond with the American Novice Section. This was carried, I think by 14 to 5 in favour, but was then thrown out by the Federal Convention."

"Okay Ian, you asked for feedback and you've got it! I know that CW is not very popular with newer guys but I also think the small space on 80 metres is a bit of a deterrent, too."

"Well, there you are. Tom has had his say in this month's column, I wonder if others of you have like opinions or whether you may be inclined to disagree. No matter what, I would point out that it is up to you to raise matters such as these for discussion, take them to your clubs, workshops, and Divisions. If you feel that you are right you will finally win your point if you can present a proper and fair argument for your cause. Again, I emphasise that there should go about such things in the right way. I find myself most critical of those amongst us who just sit back and whinge, saying that the WIA should do something about it, when those complaining are not prepared to go to the greatest effort to try and solve their own perceived problems."

In many cases, I suspect that these persons squeaking about matters are not even members of the Wireless Institute of Australia, but still expect our national organisation to do all that it can to protect them and their precious rights. In other cases, they are persons with a vested interest, in one way or another, in stirring up strife and bent on criticism of the WIA to serve their own egos, or for some form of nefarious gain. It is really time that the majority of united amateurs in this country, and by that I mean the majority united within the nationally recognised organisation, make it quite clear that they will not stand for

fragmentation of the amateur fraternity/sorority which can be brought about by selfish and introspective attitudes being shown in some areas.

It is about time that those who are not members of the WIA wake up to reality. It does no good for them to think that they are so in the right that they can go to the authorities pretending that they represent the amateur service in this country.

There are those members who unfortunately are not really loyal to the organisation but utilise their membership for mere personal or political benefit. Such persons seem also to think that they have a right to demand that the WIA follow certain courses of action. It would seem to me that, whilst some of these types probably feel justified in what they do, it is unfortunate that they are often either young and relatively inexperienced or only relatively new to the WIA in terms of years of membership.

I would contrast such individuals with such as G Maxwell Hull or George Luxon, well-known names to those who are informed in Institute matters, who have faithfully played their part over many years. I would repeat my recent comment that I accept that the WIA is not perfect as an organisation, however, the best way to make a real contribution to our hobby is by being or becoming a member and working through the existing forums of the organisation which has served us well for many years. Change things if you will, but do it in this manner and your efforts will be rewarded with the result of having done something which will be seen always as worthwhile.

I would make yet one other plea, and that is — when you do attempt to place what may seem to be facts before other people, you check them out carefully first before bursting into print or putting out such information over the air. There are too many cases I have noted of not only inaccuracy, but downright deception and distortion of the truth. Some of this may be caused by ignorance of the true facts although even that cannot be condoned or excused. In other words, do your homework first!

Well, that should be enough of the "soapbox" approach for now. I do admit that I feel strongly about our hobby and the need for us to be united in our efforts, hence my comments from time to time along these lines. I also feel strongly about morality and truth. Too often these values are sacrificed for commercialism and expediency.

HF CONTEST CHAMPIONSHIP

I have not been providing progress scores for this competition due to the limited amount of time available to me. My personal feeling is that while operators are very competitive and have an interest in how well they are going in the competition, they will already have a fairly good idea where they stand. I therefore prefer to wait until all the contest results are available.

The results of the 1985 Championship have not yet been announced as I am still awaiting the publication of the results of the VK/ZL Contest for 1985. Until I have these I cannot finalise this matter, so please bear with me.

In my report to the Federal Convention I recommended that there should be two trophies for this competition, namely, one for the champion phone operator and one for the champion CW operator. That recommendation was accepted by the Federal Convention and I would expect that a new trophy should become available so that this decision can apply to this years (1986) event.

Amongst my recommendations to the Convention was that the current trophy be refurbished. This trophy was originally presented to the Institute by Peter VK4PJ. It is silver plated and has been lacquered to protect the plating. Such an approach is okay to a degree where the trophy is not handled or moved about very much.

The ravages of time have had their effect on the trophy and its appearance has deteriorated through no fault of anyone in particular. I have suggested that it be gold plated and have been advised that this recommendation was agreed to. (It might interest you to know that, generally speaking, gold plating is cheaper than silver plating and produces a more durable and attractive finish not normally requiring attention,

apart from the odd wipe with a soft cloth).

I also made the recommendation to the Convention regarding the rules for the HF Contest Championship. The rules, up until now, have been very broad and could have been applied in a number of different ways. To overcome some of the problems which existed and to ensure that the application of same would be consistent and unambiguous, I provided a set of proposed rules. These were adopted by the Convention with little amendment. I feel sure that the majority of you will agree with the Federal Council and will find the rules to be fair to all operators. I now provide you with the details as follows:

HF CONTEST CHAMPIONSHIP RULES

This contest championship competition will be conducted on an annual basis.

To be eligible for this competition entrants must have entered at least **three** of the **four** HF contests sponsored by the Wireless Institute of Australia each year.

A perpetual trophy will be awarded to the entrant with the greatest number of points gained under the terms listed below. The call sign of the winning operator will be inscribed on the trophy. A 'replica' trophy will also be presented to each annual winner for his/her retention.

The four contests concerned are as follows:

John Moyle Memorial Field Day Contest

Remembrance Day Contest

VK Novice Contest

VK/ZL Contest

Points towards the trophy competition will be awarded on the following basis:

For the top 10 scorers with 10 points for the highest score down to one point for the tenth position.

The points are to be allocated on a State basis. (Awarding points on a State basis overcomes any unfairness due to geographic/propagation advantages which may exist).

Points will only be allocated where five or more entries exist from any State.

OR

Points will only be allocated where the score is equal to at least 25 percent of the average of the top scoring logs from each State.

(Previous provisos overcome the problem where only one 'token' entry appears for a particular category/section from any State).

Points for the John Moyle Memorial Field Day Contest will only be allocated to stations who actually operate "In the Field"; ie Home Stations in the Field Day Contest are not eligible for points.

Club or Multi-operator stations are not eligible for points.

Points in the VK/ZL Contest are awarded for the total scored on Phone or CW. They are not awarded on an individual band basis.

In the event of a tie, joint champions will be declared.

CERTIFICATES

It was during last year that I was able to catch up on the backlog of certificates. Since then, making out of certificates has again fallen somewhat behind. You might remember that I referred in this column to the splendid work done by my work-friend, Florence Mudie, who has hand-lettered all the certificates for me. Following catching up on the backlog, I made a suggestion to the Federal Office that our President could perhaps show our appreciation to Florence for her work by way of a letter of thanks. Once this was done, I felt clear to present Florence with my request for more of her kind assistance. (She had in fact offered to help, in any case).

I can report that the matter of outstanding certificates is in hand and I will be sending them out as soon as they become available. You will realise that with them being individually handwritten, it does take some time, however the results are certainly worthwhile.

Once again, I would like to record my personal thanks to Florence for her kindness in this matter.

JUBILEE 150

You have no doubt read, or heard, about the J150 Award which can be gained by working the required VK5 stations and amassing the needed points to gain this award. With the year half-way through, this award seems to be quite popular and

whilst it is not regarded as a "contest", one could be forgiven for mistaking some of the operations as being somewhat contest orientated. There is rather a lot of fun attached to gaining this award. You need only listen to the mighty dog-piles appearing on the Jubilee Net frequency on 80 metres (3.588 MHz) to see what I mean. Might I suggest this activity to you.

It does not take too much to qualify once you catch up with some of the triple-certificate holders of the award, who can give out 46 points per contact per band. You can soon find yourself in a position to be able to help by giving out points to DX stations who, after they have the award, can then carry on with helping others in their turn to qualify.

Personally, I am finding this particular approach to an award, which is certainly a new way of doing things and which might catch on elsewhere, almost as much fun as straight contesting. Anyway, give it a try for yourself.

CLASHING CONTESTS

I recently received a telephone call from Don VK5NOD, who pointed out an anomaly in my notes in the June column. In the Contest Calendar I had shown the *All Asian Phone Contest* as being held on June 14-15, while the rules printed in the same issue showed the date for the contest as being June 21-22. Whilst I apologise for this anomaly, I also plead "Not Guilty". The dates in the Calendar were obtained from material supplied to me from overseas whilst the rules were placed in the magazine directly by having been sent to Melbourne for publication. It is a somewhat large task to keep track of the dates for all contests, however we try to do our best for you. I do trust that nobody has been greatly inconvenienced by this occurrence. In any case, we do again apologise if such did occur. I thank Don for bringing this to my attention.

The matter of contests clashing could be referred to at this time. The VK Novice Contest was scheduled for June 21-22, and has thus possibly clashed with the *All Asian Phone Contest*. It is necessary for me to set the dates for our contests each year not much later than the middle of the preceding year. In setting dates I try to ensure that our contests do not clash with other major overseas events, however I may not always be able to achieve this aim. I quite often do not know just which weekend other organisations will choose for their contests, thus matters are made somewhat difficult. In the instance referred to above it is quite likely that selecting which weekend on which to run the particular contests may have become complicated due to the fact that the month began on a Sunday.

The *All Asian Phone Contest* is usually held on the third weekend of the month and I possibly took the weekend of the 22nd to be the fourth weekend, which I believe would be the correct approach. (Or would it?). In any case, we can only try and do our best for you. If there is some other convenient way to sort out the mess of contests, I would like to know what it is?

Well, I believe that is enough of my dissertations for this month. I wish you all the very best for now. 73 de Ian VK5QX.

QRP ARCI 1986 FALL CW CONTEST

This contest is held from 1200 UTC Saturday, October 18, 1986 to 2400 UTC Sunday, October 19, 1986. Participants may operate a maximum of 24 hours.

Members give RST, State/Province/Country and QRP ARCI membership number. Non-members give RST, State/Province/Country and power output.

Stations may be worked once per band for QSO points.

Each member contact is five points, regardless of location.

Each non-member contact, on the same continent is two points.

Each non-member contact, different continent is four points.

Multiples: S/PIC: The US and Canada do not count as countries (count States and Provinces only for WVE). A S/PIC may be worked once per band for S/PIC multiplier credit. Add S/PICs separately for each band, one point each, then add up S/PIC points for all bands to arrive at the

total S/PIC multiplier.

Power:

4-5 watts output x 2

3-4 watts output x 4

2-3 watts output x 6

1-2 watts output x 8

Less than 1 watt output x 10

More than five watts output will be counted as check logs only. The highest power used for any contact, any band, will determine the multiplier to be used for scoring the whole log.

Bonus multipliers apply for natural power (solar, wind, etc — with or without storage) x 2. With storage, storage cells must be charged by the natural power source within 48 hours preceding the start of a contest. Battery power x 15. No other source of power may be used for these 15 times during the contest to qualify for these multipliers.

Suggested scores are: 1,810, 3,560, 7,040; 14,050, 21,060, 38,060; 50,600, 3,710, 7,110; 21,110, 28,110 MHz (please note that some of these frequencies are outside the VK allocation). No 30-metre (10 MHz) or 12-metre (24 MHz) contacts will be counted.

Call CQ CQ QRP DE (Call Sign).

Scoring: S/PIC points (total all bands) times S/PIC multiplier (remember, a S/PIC may be worked on more than one band and counts once on each band for S/PIC multiplier points) times power multiplier times bonus multiplier (if none, use 1) equals claimed score. Use of the scoring summary sheet will help avoid errors; summary sheets may be obtained by sending a large SAE and IRCs to the contest chairman.

Separate log sheets for each band is suggested for ease of scoring. Send full log data plus separate worksheet showing details and times off-air. No log copies will be returned. All entrants desiring results and scores please include a large SAE and IRCs. It is a condition of entry that the decision of the QRP ARCI contest chairman is final in case of dispute.

Certificates will be awarded to the highest scoring station in each S/PIC with two or more entries. In addition, Adrian Weiss W0RSP, is sponsoring a special *Milliwatt* Certificate to the highest scoring station in the less-than-one-watt category, provided there are two or more entries in that category.

Logs must be received by November 19, 1986. Logs received late or ones that are missing information will be used as check logs. Send logs to: QRP ARCI Contest Chairman, Eugene Smith K45NQ, PO Box 55010, Little Rock, AR. 72225-0010.

The TENTH WEST AUSTRALIAN ANNUAL 3.5 MHz CW and SSB CONTESTS

Transmitting and Receiving

DURATION: CW — Saturday and Sunday, August 2 and 3. SSB — Saturday and Sunday, September 6 and 7. On both days between the hours of 1100 and 1330 UTC; ie five operating hours in all for each contest.

FREQUENCIES: All contacts to be made in the 3.5/3.7 MHz band using frequency allocation applicable to your licence conditions.

CALLING: Stations will call CQ WAA using the three times three technique. Infringement of this rule by the use of long CQ calls may entail disqualification as will pre-arranging of a QSO.

SCORING: Points for contacts are as follows:

Within Western Australia five points per contact

WA to all Mainland Eastern States two points per contact

WA to VK7 four points per contact

WA to VK0 and Overseas eight points per contact

Stations other than WA three points per contact with WA stations only.

MULTIPLIERS: A multiplier of two per Western Australian Shire worked will apply to the final score. For Western Australian stations north of the 26th parallel a multiplier of 1.3 per contact is confirmed.

CONTACTS: Stations may be worked twice on each night; ie once between 1100 and 1330 UTC and again between 1300 and 1530 UTC. These

contacts will count for points. Each time the contact for WA stations will take the form of an exchange of five characters comprising RS/T and Shire letters; eg a station in Northam sends 579N or if in Harvey 579HY, this helps towards the Worked All Shires Award. Eastern states and overseas stations will send RS/T plus a running number start at 001.

LOGS: Contest logs are to be set out on one side of a quarto or foolscap sheet with columns headed as below.

DATE:	CALL:	OPERATOR:
TIME	CALL/ST	RST
UTC	WWD OUT	SHIRE LETTERS
		SHIRE MULTIPLIER
		PONTS CLAIMED

Column seven to be totalled at the foot of the each page and the running totals brought forward. The last page to contain the following summary: Total number of points scored, Input power, Equipment and Antennas used, along with comments on the contest in general.

SWL participants score as above using the outgoing transmit score.

All logs to be addressed to WAA Contest Committee, 42 Kennedy Street, Melville, WA, 6156 and posted so as to reach the destination not later than October 10, for both contests. The results for both contests will be published in December's issue of Amateur Radio.

SHIRE LETTERS

1. Albany Town	AT	70. Leonora	LA
2. Albany	AL	71. Mandurah	MB
3. Armadale	AK	72. Manjimup	MP
4. Augusta/Margaret	AM	73. Meekatharra	MK
River	BA	74. Melville	MV
5. Bassendean	BB	75. Menzies	MZ
6. Baywater	BW	76. Mingenew	MD
7. Busselton	BO	77. Mingenew	MW
8. Boulder	BD	78. Moora	MA
9. Boyup Brook	BB	79. Morawa	MR
10. Brookton	BG	80. Moosman	MS
11. Brookton	BE	81. Mukinbudin	MU
12. Brookton	BD	82. Mundaring	ME
13. Busselton	BB	83. Munderup	MG
14. Busselton	BB	84. Murchison	MH
15. Belmont	BL	85. Murray	MY
16. Boddington	BY	86. Nannup	NP
17. Boddington	BY	87. Mt Marshall	ML
18. Busselton	BN	88. Nannup	NG
19. Cannington	CA	89. Narrogin	NG
20. Camerton	CN	90. Narrogin	NT
21. Cannington	CA	91. Narrogin	NT
22. Camerton	CN	92. Nedlands	NL
23. Chapman Valley	CV	93. Nedlands	NM
24. Cervantes	CE	94. Northam	NO
25. Claremont	CT	95. Northam	NH
26. Cockburn	CR	96. Nunagin	NG
27. Collie	CE	97. Northam	NG
28. Coogee	CG	98. Northam	NG
29. Coorow	CS	99. Perth	PH
30. Corrigin	CP	100. Pingelly	PT
31. Cottesloe	CT	101. Pleasanton	PT
32. Cooyarook	CB	102. Port Headland	PD
33. Cuballing	CB	103. Quairading	QG
34. Cue	CE	104. Quairading	RT
35. Dandaragan	CD	105. Rockingham	RM
36. Dandaragan	CD	106. Roebourne	RB
37. Dandaragan	CD	107. Sandstone	SS
38. Dardanup	CD	108. Sandstone	SJ
39. Denmark	CD	Jerrardale	
40. Donnybrook	DB	109. Stark Bay	SB
41. Doodingup	DR	110. South Perth	SP
42. Dumbleyung	DG	111. Stirling	ST
43. Dundas	DR	112. Subiaco	SW
44. Duncraig	DR	113. Swanbourne	SW
45. East Pilbara	EP	114. Tambellup	TP
46. Esperance	ES	115. Tammin	TM
47. Exmouth	EH	116. Three Springs	TY
48. Farnham	EF	117. Toodyay	TY
49. Gingin	GG	118. Trayning	TY
50. Gnowangerup	GP	119. Upper Gascoyne	UG
51. Geraldton	GN	120. Victoria Plains	VP
52. Golding	GD	121. Wandoan	WD
53. Gossel	GS	122. Wandering	WD
54. Greenough	GR	123. Wanneroo	WO
55. Hills Creek	HC	124. Waroona	WR
56. Hove	HW	125. West Arthur	WA
57. Irwin	IR	126. Westonia	WS
58. Kalamunda	KA	127. West Pilbara	WP
59. Kalgoorlie	KW	128. Wickup	WI
60. Karratha	KA	129. Wittenoom	WU
61. Kellarupin	KM	130. Williams	WL
62. Kent	KT	131. Wongan Ballidu	WB
63. Kondinin	KD	132. Wyndham	WD
64. Kondinin	KD	133. Wyndham Ballidu	WD
65. Koorda	KO	134. Wyndham East	WE
66. Kulin	KU	KU	
67. Kwinana	KW	135. West Kimberley	WE
68. Lake Grace	LG	136. Yalgoo	YO
69. Laverton	LV	137. Yilgarn	YN
		138. York	YK

EUROPEAN DX CONTEST

The Deutscher Amateur Radio Club (DARC) invites all amateurs to participate in this contest.

Periods — The contest is held over three weeks — CW: August 9/10; Phone September 13/14; and RTTY November 8/9 — from 0000 UTC Saturday to 2400 UTC Sunday.

Bands — 3.5; 7; 14; 21, 28 MHz.

Classification — Single operator, all band; Multi-operator, single transmitter; Multi-operator/Single transmitter — stations are only allowed to change band one time within a period of 15 minutes. A quick band-change and return for working new multipliers is allowed.

Rest Period — Only 36 hours of operation out of the 48 hours are permitted for single operator stations. **The 12 hours of non-operation** may be taken in one, but no more than three periods at any time during the contest and have to be marked in the log.

Exchange — A contest QSO can only be established between a non-European and a European station. Exchange the usual five or six digit serial number RS/T report plus a progressive QSO number starting with 001.

Points — Each QSO counts one point. A station may be worked once per band. Each confirmed QTC, given or received, counts one point (see below).

Multipliers — The multiplier for non-European stations is determined by the number of European countries worked on each band. Europeans will use the last ARRL countries list. In addition each call area in the following countries will be considered as a multiplier: JA, PY, VE, VO, VK, ZL, ZS, UA90 (see special regulations for RTTY). Each Wk-state will be considered a multiplier, but no Wk call areas.

The multiplier on 3.5 MHz may be multiplied by four.

The multiplier on 7 MHz may be multiplied by three.

The multiplier on 14/21/28 MHz may be multiplied by two.

Scoring — The final score is the total QSO points plus QTC points multiplied by the sum total multipliers from all bands.

QTC Traffic — Additional point credit can be realised by making use of the QTC traffic feature. A QTC is a report of a confirmed QSO that has taken place earlier in the contest and later sent back to a European station. It can only be sent from a non-European station to a European station. The general idea being that after a number of European stations have been worked, a list of these stations can be reported back during a QSO with another station. An additional one point credit can be claimed for each station reported (note special regulation for RTTY).

(a) A QTC contains the time, call and QSO number of the station being reported; is 1300/DA1AA/134. This means that at 1300 UTC you worked DA1AA and received number 134.

(b) A QSO can be reported only once and not back to the originating station.

(c) **Only a maximum of 10 QTCS to a station is permitted.** You may work the same station several times to complete this quota. Only the original contact, however, has QSO point value.

(d) Keep a uniform list of QTCS sent. QTC 3/7 indicates that this is the third series of QTCS sent and that seven QSOs are reported.

Contest Awards — Certificates to the highest scorer in each classification in each country, reasonable score provided.

Disqualification — Usual disqualification criteria applies.

Logs — Use separate sheets for each band. All entrants are required to submit cross-check (dupe) sheets for each band on which they worked more than 200 QSOs. For each duplicate contact that is removed from a log by the checker, a penalty of three additional contacts will be eliminated.

Special Regulations for RTTY — In the RTTY section of the European DX Contest also contacts between all continents and also one's own continent are permitted. Multipliers will be counted according to the European and ARRL Countries List. QSO as well as QTC traffic with one's own country is not allowed. SWLs apply to the rules accordingly.

Deadline — CW: September 15; Phone: October 15; RTTY: December 15.

European Countries List — C31, CT1, CT2, DL, EA, EA6, EI, F, FC, G, GD, GI, GJ, GM, GM

Shetland, GU, GW, HA, HB, HBO, HV, I, IS, IT, JW, Bear, JW, Spitsbergen, JX, LA, LX, LZ, OE, OH, OH0, OJ0, OK, ON, OY, OZ, PA, SM, SP, SV, SV5 Rhodes, SV9 Crete, SV Athos, T77M1, TA European Part, TF, UA 1346, UA2, UA Franz Josef Land, UB, UC, UN/UK1N, UO, UP, UQ, UR, Y22-99/DM, YO, YU, ZA, ZB2, 1A0, 3A, 4U1 Geneva, 4U1 Vienna, 9H1.

Mailing Address — WAEDC Committee, PO Box 1328, D-8950 Kaufbeuren, West Germany.

VISJSA TO CELEBRATE COUNCIL CENTENARY

John Hampel VK5SJ
16 Mitchell Street, Glengowrie, SA, 5044

The WIA SA Division will operate a Special Event Station with the theme 'Service to the Community by Amateur Radio' to mark the centenary of Marion Council, which is celebrating 'A Century of Service' as a Jubilee 150 event in South Australia.

The District Council of Marion was proclaimed on September 2, 1886. It has grown to a population of over 70 500, covering the south-western Adelaide suburban area with extensive industrial development on the southern boundary.

As part of the South Australian Jubilee 150, Marion is sharing exchanges of historical material and personal visits with its J150 twin town, El Paso in Texas. On September 2, and exchange of greetings on 14 MHz is planned between Mayor Rodgers of El Paso and Mayor Hodgson of Marion.

On the same day, VISJSA will be used to receive messages of congratulations from Mayors of South Australian country towns, who will speak via amateur radio through a network of VK5 stations who are co-operating in the project. These exchanges will take place on 3.500 MHz prior to the Council's Centenary Meeting in the evening.

The Special Event Station will include extensive historical displays of communications equipment and documents at the Marion Library. The organisers and the Council anticipate the operation of the station, together with static displays of various facets of the hobby, will attract attention to the roles of the Amateur Radio Service in the community.

VISJSA will operate during library hours from August 26, to September 5, 1986, Monday, Wednesday, Friday 0000-1030 UTC and Tuesday, Thursday 0000-0730 UTC. Jubilee 150 frequencies will be used: is SSB — 3.586, 7.086, 14.186, 14.266 and 21.186 MHz. CW — 3.536, 7.036, 14.136 and 21.136 MHz. There will also be RTTY operation on 7 and 14 MHz. Local VHF and ATU will also operate.

A special JSA QSL card will be used and a Marion Centenary Award will be issued. Further details of this award will be in the Awards section.

The organising committee would be pleased to hear from VK5s who would be able to assist during the operation of the Special Event Station, VISJSA.

The Marion Council Centenary J150 Amateur Radio Co-ordinator is John Hampel VK5SJ, phone (08) 295 6751.



Australian Ladies Amateur Radio Association

Joy Collis VK2EBX
PUBLICITY OFFICER, ALARA
Box 22, Yeoval, NSW 2868

Well, here we are in the depths of winter, definitely not the time of year for experimenting with aerials, etc. Never mind, we can still get the transceiver and the radio shack warmed up and find someone to talk to, even when propagation is at its lowest ebb.

RAG-CHEWING A LOVELY WAY TO SPEND AN EVENING

A little rag-chewing on the lower bands is a good way to pass the long evenings, and it is always pleasant to meet-up with old friends again for a chat, somewhat akin to "yarning with a neighbour over the back fence."

Perhaps we YL operators do share a special bond of friendship having its roots in the days when the main YL function was to provide sustenance for the OM's at social gatherings. Now-a-days, YL participation in amateur radio is firmly established and our members are steadily growing.

HOW DID ALARA BEGIN?

So how did ALARA, (or LARA, as it was known then), begin? I cannot vouch for the veracity of the following, and our historian, Mavis VK3KS, has written an excellent account which is doubtless closer to the truth, but it could have happened this way:

Some ladies met and said "You know it really is a bore,

To be stuck with kids and washing-up and every kind of chore.

Being XYLs of amateurs is really not so good

When they are working radio while we're preparing food!

We can't beat 'em, so let's join 'em, get some action of our own,

And a group of us together can do more than one alone".

So they formed a ladies' amateur group, and soon the OM's knew

They had competition on the air as LARA grew and grew.

Now things are very different, as all will soon agree,

And the YL role has changed a lot since LARA came to be;



So while YLs work the radio at all the social "dos"

The OM's are baby-sitting while they tend the barbeques.

In case any of our long-suffering OM's feel they are getting a raw deal, I would hasten to add that we are very appreciative of their continued support and encouragement in the hobby we all enjoy — amateur radio.

WIA ANNIVERSARY MEDALLIONS

Unfortunately, we omitted one recipient of the WIA 75th Anniversary Medallions (see June AR).

Joan Sutherland VK3NL0, — organisation of the Bendigo Premier Town Award and running the net.

Sorry about the oversight, Joan, and congratulations.

South Australian YLs get-together at the home of Meg and David, VK5AOV and VK5OV. From left: Denise VK5YL, Marlene VK5QO, Judy VK5BYL, Jenny VK5ANW, Joy VK5YJ and Meg VK5AOV.

MEMBERSHIP UPDATE

Following are amendments to the Membership List, as printed in July AR.

Associate Member for VK5 — Christine Taylor. Christine is a new member and we welcome you, Christine.

Associate Member for VK3 and VK6 — Rita Ashbury and Peggy VK6NKU. Both have re-joined and we welcome you both back, Rita and Peggy.

UPGRADED

Bron ex-VK3NTD/XTD is now VK3DYF and Josie ex-VK4VAN is now VK4VG. Congratulations on the new call signs, Bron and Josie.

7/33. See you next month, Joy VK2EBX.

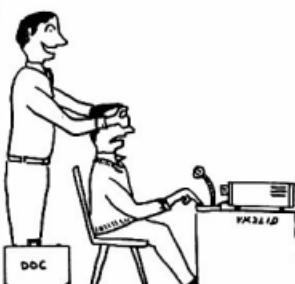


During February 1986, Jenny VK5ANW, presented Marlene VK5QO, with her 75th medallion on behalf of the VK5 Divisional Council, at the home of Meg VK5AOV and David VK5OV.



Jenny VK5ANW, presents Joy VK5YJ, with her 75th medallion on behalf of the VK5 Divisional Council at the VK5 YL get-together.

"... Guess who? . . ."



— VK2COP



Awards

Ken Hall VK5AKH
FEDERAL AWARDS MANAGER
St Georges Rectory, Alberton, SA, 5014

AWARDS ISSUED RECENTLY

WAVKA
 1479 Kazumasa Kawase JG3RPL
 1480 Akiyoshi Takahashi JA7ERA
 1481 Koichi Mori JH7FWA
 1482 Mamoru Wakasugi JA8CAQ
 1483 Eduard H Pandoe YC2AEP
 1484 Abet Suhailan YB4FNN

DXCC PHONE

344 Bob Milligate VK4ADZ
 345 Warren H Cure VK7CV
 346 Tom D Dowling VK4OD

CORRECTION

The call signs of the club station for the Brisbane ARC Inc are VK4BA and VK4WIL.

THE ARANC CAGOU AWARD

New Diploma Colour

This diploma is offered to DX stations outside New Caledonia.

1. DX stations shall work six New Caledonia stations.
2. Contacts from January 1, 1972 or after are valid for this award.
3. Use any amateur band or mode.
4. Applicant shall submit normal log information. QSL cards are not required.
5. The application shall be sent together with 12 IRCs to: ARANC Award Manager, PO Box 3956, Noumea, New Caledonia.

The Cagou Award will be returned by air mail. Please allow 15 days for delivery.

SPECIAL PREFIX

To commemorate the 25th anniversary of the Amateur Radio Association of New Caledonia, all members of the club will use a special prefix during the period from August 9 to December 31, 1986 inclusive.

The prefix will be FK25.

At the same time, and for the same period, the club station will use the call sign FK25A.

In order to allow a maximum number of amateurs around the world to qualify for a commemorative award, members have pledged to be on air as often as possible for the full period.

The club station will also be activated quite frequently.

COMMEMORATIVE AWARD

1. PERIOD — from August 9 until December 31, 1986 inclusive. The date limit for award applications will be January 31, 1987.

2. ALL BANDS, ALL MODES — for contacts made via OSCAR-10, an individual station may be contacted more than once, but there must be 24 hours minimum between QSOs.

CONDITIONS —

a) Stations must make **one QSO** with the club station, FK25A.

b) OR make **three QSOs** with stations using the FK25 prefix.

c) OR have QSOs with **five stations** during the above-mentioned period, using any of the following prefixes: FK8, FK1, or FK0.

4. QSL CARDS NOT REQUIRED — a log extract certified by a radio club or two licensed amateurs.

5. AWARD PRICE — the award costs five IRCs or US\$2 for surface mail or eight IRCs or US\$3 for air mail.

6. ADDRESS — applications should be sent to: FK25A Award Manager, PO Box 3956, Noumea, New Caledonia, South Pacific.

DIPLOME DU GABON

DDG1 — Confirmed QSOs with eight different TR stations, any mode, any band.

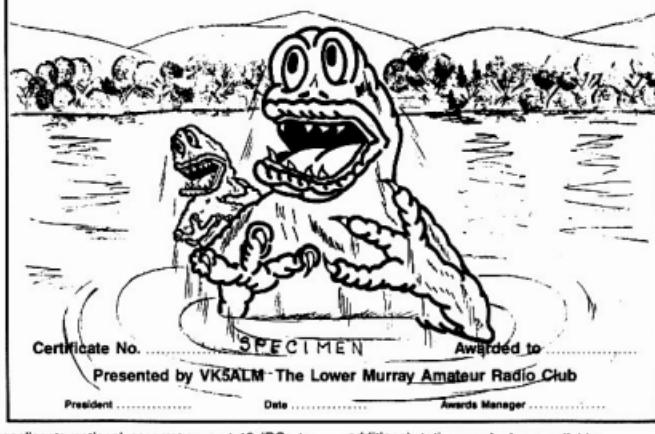
DDG2 — Confirmed QSOs with 12 different TR stations, any mode on at least three HF bands.

DDG Special — One confirmed QSO on each of five different HF bands with at least two bands out of the three lower HF bands.

Minimum report of 33 or 339 will be accepted.

Send GCR list of confirmed QSOs certified by two other amateurs or an official from the

THE BUNYIP AWARD



Certificate No. SPECIMEN Awarded to
 Presented by VK5ALM - The Lower Murray Amateur Radio Club

President Date Awards Manager

applicants national association and 10 IRCs to: AGRA Diploma Manager, BP 1826, Libreville, Gabon.

THE BUNYIP AWARD
The Bunyip Award is presented by the Lower Murray Amateur Radio Club.

The requirements to obtain the award are as follows:

Australian stations are to work the Club Station VK5ALM, and five club members or seven club members.

DX stations are to work VK5ALM and two club members or four club members.

Shortwave Listeners may also apply for the award.

Log to be set out with Date; Frequency; Call Sign; Name; Location.

Cost of the award is \$4 plus a 50 cent stamp.

Applications to be sent to: Awards Manager LMARC, PO Box 234, Murray Bridge, SA, 5253.

CLUB MEMBERS — VK55 ABW, AHK, AKC, BRS, JP, NRB, NSI, PAN, PGH, UY, YU.

VANUATU AMATEUR RADIO SOCIETY WARD

This award is a standard size certificate printed in the four colours of the Vanuatu flag and containing a scale map of the archipelago.

1. The award is offered to all licensed amateur radio operators who qualify.

2. To obtain this award, the amateur operator must have made not less than six contacts with Vanuatu stations carrying the YB8 call sign who are members of the Vanuatu Amateur Radio Society. Contacts made from Vanuatu Independence Day, July 30, 1980 are acceptable.

3. Contacts may be made by CW, SSB, or RTTY.

4. Two contacts with any one YB8 station will be accepted providing these contacts are made on different days, different bands or by different modes.

5. A log extract from the applicant showing the contacts claimed and certified by the signatures of two other licensed amateurs will be accepted. This record will be checked with the logs of the YB8 stations worked.

6. Endorsements for all one mode, all one band or

additional stations worked are available.

Cost of the award is US\$2 or equivalent or 10 IRCs.

All inquiries and submissions should be addressed to: Awards Manager, VARS, PO Box 665, Port Vila, Vanuatu.

HAITI FLAG DAY DX PARTY

This event was held from 0000 UTC, May 18 to 2400 UTC, May 18, 1986 with the co-operation of all Haitian amateur radio operators. For the event, Haitian stations used the prefix 4V.

The purpose of the exercise was to introduce the Haitian Flag and to promote two-way contacts between Haitian amateurs and the rest of the world.

QSL cards and Flags Certificates will be awarded to stations who have contacted 10 Haitian stations using the prefix 4V.

QSLing via the bureau is essential with an IRC if possible.

Inquiries to PO Box 1484, Port au Prince, Haiti, WI.

WIA 75 AWARD

Hasko Soejono YC2ERJ, Certificate No 664.

DARC DX AWARDS

General Rules — These diplomas can be obtained by licensed radio amateurs and SWLs world-wide. All contacts must be made from the same country.

Awards for club stations will be issued to the club and not to an individual operator. The DARC DX Awards are based on the European Country List and the ARRL DXCC List. All amateur bands, for which the applicant holds a valid license may be used. A set application form for the DARC DX Awards is available for three IRCs at the address below. The use of these official forms is obligatory.

QSL cards for all contacts claimed must be submitted with the application. Any altering or forging will result in disqualification. The service charge is 10 IRCs, 10-DM or US\$5 per award. The cost for each endorsement is five IRCs, 5-DM or US\$3.

All applications to DARC DX Awards, Walter Geyhalter DL3RK, PO Box 1328, D-8950

Kaufbeuren, West Germany.

New award holders will be published in CQ-DL the club magazine of DARC.

European Countries List — C31, CT1, CT2, DL, EA, EA6, EI, F, FC, G, GD, GI, GJ, GM, GM, Shetland, GU, GW, HA, HB, HB0, HV, I, IS, IT, JW, Bear, JW Spitsbergen, JX, LA, LZ, OE, OH, OH0, OH1, ON, OV, OZ, PA, SM, SR, SV, SV5 Rhodes, SV9, Crete, SV, Athos, T77/M1, TA European Part, TE 1346, UA2, UA3, UA4, UA5, UA6, UB, UC, UN/UK1N, UO, UP, UQ, UR, Y22-99/DM, YO, YU, ZA, ZB2, 1AO, 3A, 4U1, 4U1 Vienna, 9H1.

WAE (Worked All Europe)

A certificate awarded to amateur radio stations for contacts with European countries on different bands.

The WAE is issued in two divisions — Telegraphy (two x CW) and Telephony (two x SSB/AM/FM). Each European country counts one point on each band. For stations outside Europe contacts on 80 and 160 metres count two points. Maximum five bands per country can be used.

Classes

WAE III at least 40 countries and 100 points.

WAE II at least 50 countries and 150 points.

WAE I at least 55 countries and 175 points.

(Holders of WAE I get a special WAE badge).

EU-DX-D (Europa-DX Diploma)

The EU-DX-D is an award that may be claimed annually. It is issued in the following classifications — Telegraphy; 2 x SSB; mixed modes. For the mixed class at least 30 percent of the contacts must be made in a different mode.

A minimum of 50 points is required for the EU-DX-D per year. 20 points must be obtained by contacts with European countries and 30 points by contacts with countries outside Europe. All bands can be used. Each country counts one point, on 80 and 160 metres two points. Stickers are available for each additional block of four European and six non-European points within the same calendar year.

The EU-DX-D may be claimed every year anew. Each year's score may be added to obtain the EU-DX-500 badge and the EU-DX-D 1000 trophy. There is no limit to the number of years.

Europa Diplom

The Europa Diplom is awarded for working/hearing amateurs in European countries. Applicants must prove a total score of at least 100 points.

Annual Score — each confirmed European country counts one point per year on each amateur band.

Total Score — Sum of the annual score for the year of application and the five preceding years. There is no devaluation.



OSP

HALLEY'S COMET AGAIN

Further to the sightings by people who saw Halley's in 1910, see page 11, June AR, I have received three more reports.

"The first comes from Eric VK2NHW, who writes: 'I saw Halley's Comet in daytime during 1910 from the corner of Burlington Street and Alexandra Lane, Crows Nest, NSW with the naked eye at approximately 30 degrees above the horizon in the southern sky. I was born in 1899 and remember the coma and tail was a golden colour.'

"I also viewed it on March 12, this year with the aid of binoculars at 5 am, after waiting for a break in the clouds, a little south of due-east. It was greyish white in colour with the tail pointing upwards. The tail was much shorter and splayed upwards than on its 1910 visit and it was not visible to the naked eye."

"I had discussed it with my next door neighbour, Mrs Fleishman prior to its visit this time ..."

Mrs Fleishman's account is as follows "... Regarding Halley's Comet — I was 10 years of age and remember it in May or June of 1910. It was early morning, very cold and frosty, a clear sky



Europe Diplom Honour Roll

Each certificate holder with an actual score of at least 300 points will be listed in the Europa Diplom Honour Roll.

The Honour Roll will be published twice a year in CQ-DL, the club magazine of the DARC.

To improve the score QSL cards may be turned in twice a year. Make sure that the award manager receives them before June 30 or December 31 of each year to be considered in the subsequent publication.

Europe 300 Trophy

Holders of the Europa Diplom may obtain the Europa 300 Trophy. Applicants have to prove 300 country points when counting each country on each band only once in all the years. Servicing charge is 20,- DM or US\$10 for the trophy when applied together with the Europa Diplom.

(Please note these rules were revised on January 1, 1984).

WEIC (Worked EI Counties) AWARD

The Committee of the Irish Radio Transmitters Society, have pleasure in presenting the WEIC

and the Comet was clearly visible to the naked eye. At the time I was living at O'Connell, a small village about half way between Bathurst and Oberon in NSW.

"The Comet's coma was in the southern sky and was a clear bright ball with a fan like tail that appeared to be moving in an easterly direction."

"The third letter is from Eric VK4XN. "... If I delay any longer penning this letter, the Comet will be on its way back!"

"All through the years I've had a memory of my father taking me out of bed one night in 1910, and pointing out to me this bright object spread out across half the sky. This occurred at Ravenswood, an old gold mining town in North Queensland when I was about four and a half years of age."

"According to some reports in the local paper, I wonder if some of the sightings in that period were factual or had some of the people actually seen it. One lady described it 'flashing across the sky like a meteor'."

"Even though I have an eyesight problem, glaucoma, I did get a good look at it the second time around, but what a disappointment for a lot of folks..."

"Well, thank you all for your interest in putting pen to paper, to allow it to be documented, so amateurs may compare it the next time it appears.

Contributed by Ken McLachlan VK3AH

Award, the first award to be sponsored by the IRTS. The award may be claimed by licenced amateurs and SWLs world-wide, who have worked/heard different counties of Ireland.

In accordance with IARU Region 1 rules, a claim for the award must be accompanied by a QSO list and by a statement from the applicants national DX-Awards Manager that states that correctly filled in QSL cards are in the possession of the applicant. If this is not possible, the applicant must submit all QSLs concerned.

Contacts on or after January 1, 1982 only are valid.

Cost of the award is 10 IRCS.

There will be no band or mode endorsements.

It is necessary to work/hear at least 20 of the 26 counties of Ireland (EI/EJ). Counties are: Carlow; Cavan; Clare; Cork; Donegal; Dublin; Galway; Kerry; Kildare; Kilkenny; Laois; Leitrim; Limerick; Longford; Louth; Mayo; Meath; Monaghan; Offaly; Roscommon; Sligo; Tipperary; Waterford; Westmeath; Wexford and Wicklow.

Applications should be sent to the Irish Radio Transmitters Society, PO Box 462, Dublin 9.

VE7EXPO AMATEUR RADIO SOCIETY

The amateur radio station exhibit at Expo 86 reflects amateur radio's unique role in providing emergency and public service communications and also demonstrates recent amateur contributions to progress in communications.

The station features many state-of-the-art technical innovations pioneered by amateur operators, including amateur satellite, amateur television, and packet data communications. More traditional modes of communications such as Morse code, voice and RTTY will demonstrate the station's theme *Communications For Everyone*.

The station operates from 160 metres to 1.2 GHz daily from 1700 UTC to 0500 UTC the following day until October 13, 1986. CW frequencies are 3.510 or 3.710; 7.010 or 7.040; 10.105 or 10.120, 14.010 or 14.030, 21.010 or 21.110; 28.010 or 28.110 MHz. SSB: 3.740 or 3.795; 7.080 or 7.155; 14.135 or 14.205; 21.135 or 21.205; 28.135 or 28.305 MHz. RTTY: 3.590; 7.040; 10.140; 14.090; 21.090; 28.090 MHz. SSTV: 3.845; 7.171; 14.230; 21.340; 28.680 MHz.

VE7EXPO will QSL each logged QSO via national QSL bureaus.

Further information can be obtained from Larry Reid VE7LR, VE7EXPO Operations Committee Chairman, 6615 Napier Street, Burnaby, BC, Canada, V5B 2C2.

Spotlight on SWLing

Robin Harwood VK7RH
5 Helen Street, Launceston, Tas. 7250

As I was recently listening on the 41 metre broadcasting allocation to some international stations, I became aware of the distinctive propagational changes to signals from Europe. Around mid-winter, as I am writing this, we have excellent propagation during daylight hours, yet it is poor during the hours of darkness.

This is not surprising if you refer to the *Great Circle Map* in a previous Call Book; Long Path signals from Europe traverse across the southern end of South America. As the sun rises in Europe, one can readily follow the propagation pattern. Signals start to deteriorate, firstly in eastern Europe, going out at 0500 UTC. The further west you go, signal levels are okay until their local sunrise.

United Kingdom signals usually disappear around 0700 UTC. By now, conditions have significantly altered, as we approach our spring, and Europe their autumn. Yet, at the time as I collate these notes, the pattern is quite marked.

SOME SIGNALS UP IN LEVEL

As signals from Europe and the Americas sharply decline at our local sunset, coincidentally Asian and North Pacific signals have come up in level. For example, the Indonesian provincial station located in Irian Jaya, which is not normally heard when European signals are on either 9.615 or 9.610 MHz, is easily heard around 0730 UTC. It varies in frequency, hovering about 9.612 MHz and is usually in Bahasa Indonesian, although indigenous languages/dialects have been heard. These are understood across the border in Papua-Nugini.

Not surprisingly, stations from Japan, Korea, China, and the Asiatic USSR are commonly heard at consistent strength. One station not normally heard in this region, because Australia is not on their antenna pattern, is heard very well. It is *Radio KNLS*, in Anchor Point, Alaska, whose primary targets are the USSR and China.

Listen on 11.860 MHz at 0800 UTC (11.850 at 0900 UTC), and you will hear their English language broadcasts. Programming is mainly musical, interspersed with religious "spot" announcements.

POSTPONEMENT

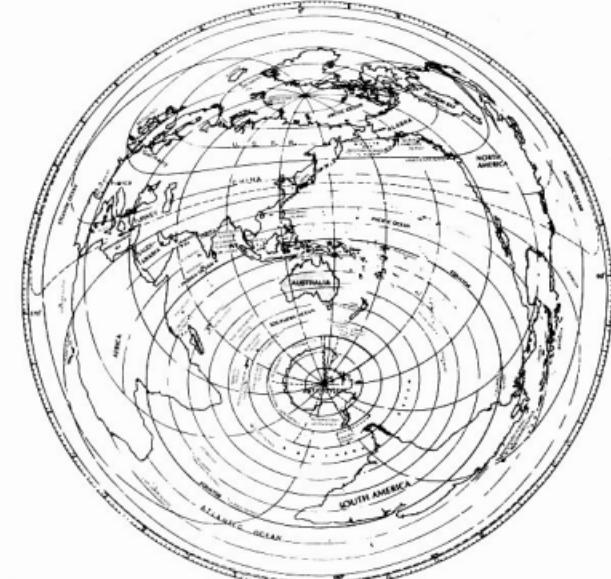
The projected date for *Radio NDXE* commencing to broadcast has been postponed. Originally scheduled for July 4, (see *Amateur Radio*, April 1986, page 53), the commencement date has now been re-scheduled for October 15. You may reflect that mention has been made in this column, of the station's proposal to transmit in AM-stereo. Delays in obtaining the specialised transmission system has caused the postponement. *NDXE* will be utilising the Kahn system, while the Motorola system, which is the one used here in Australia, has become the industry standard within the States. Kahn divides the two channels into the sidebands; eg left is on lower, while right is on upper. The Motorola format is mainly done with phase difference.

There is a question mark on the practicability of AM-stereo on shortwave at present. There are certainly no receivers with shortwave capability at this time. It is also questionable whether AM-stereo is workable with phase distortion, multi-path, plus the heavy congestion on the HF broadcasting allocations. Most consider the use of AM-stereo by *NDXE* as an advertising gimmick.

COMMERCIAL FORMAT

NDXE will be the third Stateside International Broadcaster airing a commercial format. *WRNO*, in New Orleans, was the first for a decade since the station, *WNYW* closed down in the 60s. Today, it mainly relays programming from its parent *FM station*. Revenue from religious programming at weekends just keeps it afloat. The other station, *KYOI* in Saipan, is readily heard in Australia. It has a pop format and is operational 24-hours a day, in

GREAT CIRCLE MAP



Japanese and English. It recently got into financial difficulties after the planned commercial sponsorship did not eventuate, appealing to its listeners to send in donations to keep it operational. It is still there, but for how long?

Commercial radio from a major broadcaster on shortwave does not appear to succeed. Will *NDXE* go the same way? Only time will tell. Incidentally, all the new private American shortwave stations mainly seem to have religious formats, the exception being *NDXE*.

IS IT ESPIONAGE?

Have you heard the "Numbers" stations around the HF bands? These, admittedly have been heard around for some time, ever since World War II in fact. Transmissions are usually on AM with someone reading out a stream of numerical groups. No identification is usually given. Languages vary, but Spanish and German are commonly heard. The consensus amongst the DX community is that they are engaged in espionage.

Operating across the entire HF spectrum at odd hours, these signals are usually heard on A3E or H3E (upper). Some maintain that they alternate the frequencies and operational times in a fairly predictable pattern. Recently, one of these stations popped up on our exclusive 20 metre allocation, 14.130 MHz at 1200 UTC. I could not readily identify the language, but surmise it was Arabic. Some DXers have done direction finding (DF) work on these signals, pin-pointing some of these to East Germany or Cuba, whilst others have been traced to the US and the Korean

Peninsula (both north and south).

CHECK THESE FREQUENCIES

You may like to try these channels: 10.580 MHz at 0800 UTC, 6.975 at 0530, 5.250 at 0630, 13.768 at 1200 UTC, as well as keeping an eye on 14.130 MHz from time to time. The above channels are where the "numbers" stations have been previously monitored, yet they are liable to pop up anywhere at any time. Incidentally, the "number" groups are in a five-figure cipher, repeated twice. I have seen reference to enthusiasts who mainly concentrate on these sometimes elusive signals. I know that Bob Grove of Brasstown, Pennsylvania, is one well-known enthusiast.

UNUSUAL

Whilst we are on unusual stations, what is the station on 6.348 MHz, AM around 1000 UTC daily? Broadcasting in Korean, it has old Korean songs plus plenty of slogans. Identification is extremely difficult, but it is reportedly *Radio Echo of Hope* and located within South Korea.

The North Koreans have a well-known clandestine station on 4.119 MHz at 1200, also in Korean. Called *Voice of Re-Unification* the station has always claimed to be broadcasting from Seoul, which is in South Korea, yet monitors have heard cross-modulation from *Radio Pyongyang* in the north. It has an English program at 1400 UTC. This clandestine warfare has been going on since the Korean War.

73 — Robin VK7RH



Pounding Brass

Marshall Emm VK5FN
Box 389, Adelaide, SA. 5001

Since writing the column which appeared last month, I enjoyed a personal visit from Syd VK3ASC, and we had a long and pleasant chat about many things, including CW. And I received another interesting letter from Gordon VK1AD, much of which is worth repeating here ...

"Firstly, let's clear up the matter of the telegraphic 'laugh' ... my typewriter is one of these new-fangled electronic gadgets and has little or no sense of humour ... the laugh was dah-dah-dit ... the dot on the end probably wasn't apparent. It was a signal that could be sent with considerable feeling (or lack of it), depending on the quality of the joke. For a really funny remark or joke or whatever, the signal would be sent with great feeling — length of the dashes exaggerated, and a short pause after each rendition of the signal — presumably for the operator to indulge in a real 'belly-laugh'. If the feeling was one of only slight amusement, the signal would be sent quickly and no pause for rolling in the aisles or anything, and then back to business.

"I am pretty sure that this signal and quite a few others (such as '73) came from the old 'American' code. Simple numerical codes were used similarly to today's Q-code. I faintly remember seeing recently some discussion on the use of 'D' to signal urgency ... this is no doubt derived from the old signal '8' for urgent traffic used in the American code and, of course, in practice abbreviated to 'D'. There was a code used in the old days ... '29' to indicate a message that could not be delivered for some reason, the clerk who looked after such matters was known in Australian Post Offices for many years as the '29 clerk'. The old American code was designed to save time, and even had many letters of the alphabet abbreviated; eg Y was dit-dit-dit-dit, C was dit-dit-dit, H was dit-dit-dit, and so on. Apparently, the old-timers were too lazy to send many dashes!"

With reference to mechanical Morse, Gordon says "... it took many varied forms in this country. The type used was geared very closely to the

traffic demand on a particular circuit. Manual Morse was used on lightly loaded circuits, where usually there were several stations concentrated — this was what was called a 'closed circuit' system. On more heavily loaded circuits, duplex working was used ... this had two men at each end, one sending and one receiving simultaneously over one wire. (I still have a circuit diagram of this system, I think) ... and then a system called 'Diplex' was used where one wire was used but traffic was more or less unidirectional — that is, two men sent simultaneously in the same direction over the one wire. There was even one system where two Diplexes were dplexed ... that is four operators sending in the same direction simultaneously over one wire.

"The type of mechanical Morse you were familiar with as a lad (described to Gordon in a letter) was probably the old 'Wheatstone System' — what a fertile imagination the man must have had. This was a system whereby a machine called a 'gell' was used to punch up a tape in Morse in the following fashion:

"This was sent at around 800 to 1000 words-per-minute if memory serves me correctly, and was reproduced at the other end in the same fashion — that is, on a punched tape. The punched tape was then fed into a 'reader', a machine which transcribed the Morse characters as letters on a paper tape. Handling this paper tape was quite an art — one form was pre-gummed and ran over a roller picking up water from a trough beneath, one plain tape which ran over a roller picking up gum from a trough — the beginner usually finished the day with hands, and shirt, and various other parts of the anatomy covered with icky sticky goo. However, with a little practice, a gummer could get through a staggering amount of work, and still leave most of the gum on the tape.

"There was also a system used by the NSW railways when I was learning Morse, around about 1940, which had a disc attached to the end of an

armature actuated by a solenoid which rotated in an ink trough and marked the paper tape with signals in dots and dashes ... when I was a lad (a Post Office Messenger), I used to confound the local lads at the railway station with my ability to read the audio signals straight from the sounder and have it done while they were still trying to read the dots and dashes transcribed on the paper tape. Ah! those were heady days."

I am sure all readers will join me in thanking Gordon for the entertaining information, and I hope there is more to come. I was particularly intrigued by the telegraphic laugh, which sounds a lot more flexible than "Hi". Come to think of it, I always did think "Hi" sounded more like a giggle than a laugh, and downright silly on phone.

On the subject of old-time land-line telegraphy, I have recently commenced an international correspondence with Tony Smith G4FAI, who is sort of an English "opposite number" to yours truly. Tony writes a column titled *Morse Report in Amateur Radio* (not this one). He says there is a real resurgence of interest in CW in England, and cites an award as one of the factors — I think it might be worth borrowing the idea. It is simply a certificate awarded by the G-ORP Club to any Novice who submits an authenticated log showing 50 CW contacts. The award is in two classes, 'A' for G-ORP three watts output, or less, and 'B' for any legal power output. If you think the idea has merit, drop me a line, so I may take it up with the Federal Awards Manager.

Getting back to old-time telegraphy, Tony published a fascinating article on the history of Morse in the February 1986 issue of *Practical Wireless*. We all know that the first words sent in Morse were "What has God wrought." But do you know the occasion, or who suggested them? Very interesting reading. Tony's particular interest at the moment is tracing the history of International Morse (ITU Standard Morse as we know it today). 73 till next month.

BEACON PLANNING

As previously mentioned in these notes (see page 57, July), FTAC is working on a Beacon Policy Paper this year. Below is further background material on the operation of beacons.

The choice of frequency and method of operation varies, depending upon which part of the spectrum the system operates.

In recent times there has been an up-surge in HF systems, particularly on 10 metres. Originally, the International Band Plan had a common time-shared frequency of 28.200 MHz and single channel per system, extending down towards the lower band edge for about 50 kHz. It was subsequently found that, an administration had some licenses (by regulation) in the same sub-band. To overcome this problem, the Beacon Plan was hinged around 28.200 and extended upwards toward 28.300 MHz.

For some years, the development of 10 metre beacons continued with more than half (including Australia's) now being part of the International Beacon Project, co-ordinated from the United Kingdom. There are more than 80 beacons, most between 28.200 and 28.300 MHz, at either 2.5 or 2 kHz spacings. A few channels are shared by two systems.

To us 'down-under' in these times of low sunspots, 10 metres looks like wide open, uninhabited spaces, but in other parts of the world, there is a lot of activity.

By way of history, the 10 metre (Australian) Novice sub-band was influenced by the beacon segment. First the Novices were to get a segment

time control has to be accurate for each to observe its allotted slot.

Currently the German amateurs have a beacon on 10 MHz. In world planning a spot frequency has been left at 21.150 MHz, but it is not known if it is being used. While not a beacon in the true sense, the continuous Morse transmission of VK2RCW is on 3.699 MHz.

At the Region 3 Conference, held in New Zealand last November, the spread of 10 metre systems was discussed and it was decided to change to a small group of time-shared channels. It is proposed that there would be a main frequency of a world selection, including one for Australia, possibly similar in concept to 20 metres. In addition, there would be additional channels for time-shared regional systems. The proposed sub-band extends around 28.190-28.200 MHz.

From Australia's viewpoint, we would have one beacon in the prime allocation. In addition, we would have several slots in one of the regional channels. The change over is to occur by January 1, 1990.

Australia currently has six frequencies (28.260-28.270 MHz) with systems at Townsville, Sydney, Adelaide, Albany and Perth. One is also being constructed for Darwin. For our systems to be included in the change they would need to be fitted with time controls with a repeat accuracy better than one second. Ideally they should have similar power output and antenna systems.

To be continued next month

Tim Mills VK2ZTM
Federal Beacon Co-ordinator

Club Corner

MOUNT GAMBIER'S 22ND ANNUAL CONVENTION

June 7-8

Well! If you missed the Mount Gambier Convention this year, you certainly missed another good one.

Upon arriving on the Saturday, as did most interstate visitors, it was obvious that Mount Gambier had surely turned on beautiful weather.

The Convention was very well supported by local and interstate trade displays, with some new and well-known equipment available on the market today at bargain prices. The Component Group of the South Australian Division also created a lot of interest as did the Pre-loved White Elephant Tables.



The Trade Displays certainly proved popular with visitors to the Convention.



The activities were too numerous to mention, but by the excellent participation in the Fox and Sniffer Hunts on the Sunday, it was surely one way of keeping out of the cold weather.



Antennas to the ready for the Fox Hunt.

A barbecue lunch was served and was well accepted by all in attendance.

Particularly impressive was that there was plenty of activities all day and yet there was still time to take a drive around some of the tourist sights.



VK3DIP's equipment in readiness for Fox Hunting.



Paul VK3DIR prepares for the Fox Hunt.

Presentations were held at the end of the day to the various winners of the events held over the weekend.

Winner of the Home-brew Section, with a beautiful piece of workmanship moulded into a Cavity Filter, was Brian VK3AFN.

The Perpetual Trophy, over the course of the weekend, went to Richard VK7CG, who thanked the committee for an excellent program of events.

At the close of the day, an extremely enjoyable smorgasbord tea was served. A very special thanks is extended to all the ladies and their helpers, who spent most of the week and the weekend preparing for, and serving the hungry gathering.

To the SERG Committee, a very warm thank you from one very happy visitor on behalf of fellow amateurs, families and friends for a very enjoyable and well organised convention. And a special thanks to VK5EE and VK5OA for their hospitality.

If you did not attend the 22nd SERG Convention in Mount Gambier, promise yourself a treat next

Some of the members and family of the North East Radio Group, VK3.



Participants in the two-metre Sniffer Hunt. The eventual winner was VK7CG.



Richard VK7CG, winner of the Perpetual Trophy, accepts the Trophy from VK3VT, last years winner.



From left: Kevin VK5OA, Woody VK3AGD and John VK3XS in VK5OA's shack.

year and make sure you attend the 23rd Annual SERG Convention next year. You certainly will not regret it.

Photographs and story contributed by David McAulay VK3EW

COMMUNICATION DAY 1986

The Shepparton and District Amateur Radio Club is holding its Communications Day on Sunday, September 7, 1986. The event was previously held in 1983 and 1984 and proved popular with amateurs throughout Victoria and southern New South Wales.

This year there will be demonstrations of the latest equipment and radio techniques. On display there will be a home-type AUSAT receiver station, which will probably be the first time many amateurs have seen the picture quality from Australia's own satellite.

Early indications are that there will be a very large range of new equipment on display whilst disposals type gear will also be available, along with a range of components.

Demonstrations of packet radio, hopefully on HF as well as VHF, RTTY and a comprehensive demonstration station will give plenty to see and talk about.

The Club will also be launching the Wombat Award. This is the Club's first entry into this field and the numbered awards will be eagerly sought.

The venue will be the Shepparton Showgrounds, and tea and coffee will flow all day. Also lunch will be available.

Further information may be obtained from Peter O'Keefe VK3EY, PO Box 692, Shepparton, Vic. 3630 or phone (058) 21 6070.

NORTH EAST ZONE

Fifteen members attended the meeting of the Zone held at the Wangaratta TAFE College (thanks to Dave) on Sunday June 1. Also in attendance were two prospective members and a special guest, Barry VK3XV, on behalf of the Divisional Council.

Many thanks to Barry for the news of the latest WIA happenings and for a very lively discussion.

The main interest was in the new Porpunkah repeater, and the links to Wodonga and Corryong. The Zone is now expecting some action in the near future and with luck and a bit of work, Porpunkah may be ready and running in time for the ski season visitors.

One solar panel has been purchased, and the two mounts are presently in Shepparton being galvanised.

The nine dB antenna for VK3RNE has arrived and as soon as the new mounts are sorted out, and a skyhook arranged, there will be a working bed to get it installed. Many thanks to VK3S AQU, DUD and ZR for their donations for the solar panels.

The Sunday Broadcast proposals were met with genuine approval as reception has been poor in the past. Seymour on 80 metres should improve matters considerably.

The Sunday Broadcasts took place on the new packet repeater located in the Albury area. Thanks to the dedication of about five members, commencement of operation should not be too far off.

Also discussed was the matter of equipment disposals, and it was suggested that an insert in Amateur Radio be provided to be sent in by members who wish to compete in a ballot for any goodies. The country members who used this system in the past all claim that it was much fairer.

The next meeting of the Zone will be advertised on the Sunday Morning Broadcasts and in Amateur Radio. Everyone is welcome.

Contributed by Gil Griffith VK3CGG, Publicity Officer for the NE Zone

Public Officer: Carlo Leone VK3BCL
Repeater Sub-Committee: Chas Gnaccarini
VK3BRZ and Peter James VK3AWY

GN

RE

PC

RE



Location is on the Kennedy Highway, near Evelyn Central and the Crater National Park.

ERP at present is 10 watts.

Licensee: Tablelands Repeater Group, Cairns ARC.

Contributed by Ted Gabriel VK4YG

DISABLED PERSON'S RADIO CLUB

The VK4 Disabled Person's Radio Club, VK4BTB, was officially opened in Toowoomba by Senator Gerry Jones, representing the Federal Minister for Communications, the Honorable Michael Duffy, on the August 24, 1983.

To celebrate the Club's third anniversary, an 'on-air' day will be held at Roley Norgaard's QTH on Sunday, August 31, 1986.

The 'on-air' activities will commence at 0001 UTC and cease at 0700 UTC. Should there be operators available, these hours will be extended.

The frequencies on which the Club proposes to operate on SSB are as follows:

3.590; 7.090; 14.190; 21.190 MHz.

Modes used will be dictated by availability and expertise of operators, but it is hoped SSB, CW and RTTY will all be used.

Further inquiries can be made by contacting the Club on their regular Friday Net, which commences at 0900 UTC on 3.590 MHz \pm QRM, or by contacting Roley VK4AOR, on (076) 96 7587 or Graeme VK4NYE on (076) 30 8323. Both are QTHR.

The Club is looking forward to meeting you on this day.

Contributed by Roley Norgaard VK4AOR, Station Manager for VK4BTB

DEVIL NEWS from the North West

There is not a lot of news to report from the Branch this month as the meeting was reduced to urgent matters only so that the ladies would not have to wait around too long.

The six ladies present and the guest speaker and his wife were welcomed by Rob VK7KAB. It was also announced to the 16 members present that VK7RAD was operational from VK7ZAP's QTH, and attention was drawn to the recently completed Diplexer, which was on display for members to see before it was put into operation.

Darryl Odgers was welcomed as a new member.

The rest of the evening was spent learning about Camp Quality with the assistance of a short video and a talk from John Willet. John explained the facts and requirements of the camp. The camp is from December 8 to 14 and during that time, those involved will have their entire day and some of their evening fully occupied. This fact must be understood by volunteers and their families before they commit themselves.

The men will be involved in communications for the camp and a station for contacts with other children for the camp children to talk to. Others will be involved in the activities side of things as well as a video.

As the date draws nearer, donations of cakes and biscuits may be asked for as the whole project is public funded and every cent is most important.

A pleasant get-together and supper followed to complete the evening.

The new club room is progressing quite well and some planned benches are now built and in place. It will be dedicated at the meeting to reimburse Greg VK7ZBT, for the cost of the timber which he had bought with his own funds. Thanks also to Greg for getting these notes together!

There was a Saturday Working Bee recently which resulted in the antennas being shifted and the coaxial cable being re-located into the room. Nine willing pairs of hands made the Bee a great success.

There may be a need for more Working Bees in the near future to continue with the project — Greg will no doubt let all members know when and why.

Contributed by Max Hardstaff VK7KY

DALBY AND DISTRICT AMATEUR RADIO CLUB

The Dalby and District Amateur Radio Club, although small in size, is very enthusiastic in its activities. The largest achievement of the Club

has been to successfully establish a UHF repeater which is situated on Mount Mowbullan, in the Bunya Mountains north-east of Dalby.

The repeater consists of an old commercial UHF transceiver which has been converted to the appropriate frequency.

Apart from the transceiver, all other associated pieces of equipment have been home-brewed. Consequently, the project has been a very reasonably priced one compared to many others of similar ilk. The total cost to the Club was around \$300, including a \$100 on-site public risk insurance. This was only possible through the generosity of several amateurs who contributed various components, time and physical effort to the project, especially Tom VK4NO, for the construction of the identification and control unit, and to Mike VK4XT, whose many hours of dedication made it all possible.

The Club is very active in WICEN and takes an active part in several exercises each year in conjunction with motor-cycling enduros, car rallies, off road car races, road runner marathons, etc. Experience in this area has proved that 80 metres, 3.5 MHz, is the most reliable frequency for these operations as it penetrates through most types of terrain, unlike the higher frequencies which fall in many situations.

The main problem encountered with 80 metres is the size of the antenna system needed. Consequently, the Dalby Club is experimenting with different types of portable antennas for 80 with varying degrees of success.

Contributed by Neil Holmes VK4NF, Club President

A R Showcase

HARD DISKS ARE TOO RELIABLE! !!

Users are taking huge risks with valuable data — an odd statement from one of the hard disk industry's gurus, Max Pietruszka, but as Marketing Manager for Daneva Australia, a leading distributor of mass storage devices, Max should know what he is talking about.

"The hard disk drive has become so reliable that users forget that it is even there and then POW!! right out of nowhere a power glitch, a heavy handed user or an employee with an axe to grind erases a year's worth of data".

Max has seen the cost of hard disk drives drop to the point that the average Personal Computer is not complete without one, and users no longer equate the value of their stored data with the value of the storage device.

"What price do you put on 20 MByte of data? I'm not only talking about the re-entry man hours, some data is just not recoverable."

Max sees an urgent necessity for education of the PC fraternity so that they really understand the limitations of hard disk integrity and take the necessary precautions to ensure their data's protection.

Daneva offers at least seven unique solutions to the backup and security problem. Using Fastback, a floppy based archiving system, a PC user can backup 10 MBytes in eight minutes. On an AT, 20 MBytes can be laid down in the same time.

Removable hard disk media, is an excellent method of having a hard disk and storing it too — there are about three standards of tape drive with the data cartridge being the most popular.

With a Portafile it is possible to keep a mirror of the PC's hard disk.

The ultimate backup for high performance hard disks of 70 MBytes or more is the laser disk.

For further information contact Daneva Australia Pty Ltd, 64-66 Bay Road, Sandringham, Vic. 3191 or phone (03) 598 5622.

THOUGHT FOR THE MONTH

People who don't change their minds are either perfect or stubborn.

Transceiver: "Did Dracula like computers?"

Micro-computer: "Yes! It was love at first Byte."

Education Notes

Brenda Edmonds VK3KT

FEDERAL EDUCATION OFFICER

56 Baden Powell Drive, Frankston, Vic. 3199

The statement was made to me recently that, although my position is called Education Co-ordinator, the job I am doing is that of Examination Co-ordinator, as it has paid little attention to methods of educating the general public about matters relating to amateur radio.

I can agree with this statement to some extent, but offer no apology for putting most of my efforts and available time into examination related matters. I am sure most readers would agree that support and assistance for the new recruits is probably the most effective way of ensuring the future of our hobby and the Institute.

Several recent articles have suggested ways of increasing the number of active operators.

The value of these articles has lain less in the actual proposals than in the amount of thought, discussion and argument generated by them. Some of the proposals have been directed at particular target groups; eg the young, or the computer enthusiasts. Less consideration has been given to publicising the hobby amongst the general population, which may well be the easiest and most effective way of maintaining and increasing our numbers.

Our hobby does not have a "high profile." Most people see us as CBers who have unsightly towers and cause television interference. We do not generally attract much media attention. When I changed schools at the start of last year, I moved into a population where only about five percent of the staff seemed to have heard of amateur radio. My suggestion of establishing a school radio station was interpreted as wanting to play records over the Public Address System at lunch-time. The idea of a two metre box in the car was greeted with disbelief. But I do not think this particular population is unique — it is probably quite average. Because so many of us work in fields related to our hobby, we tend to forget about the ignorance of the general public. Perhaps we should be actively educating them. There is a vast reservoir of potential recruits waiting to be tapped.

How do we go about it? We all probably spend some time in organised efforts — JOTA, Demonstration Stations, WICEN, etc where we have a captive audience, but more can be done.

Does your local newspaper accept and publish reports of your club activities or notices of meetings?

Does your local electronics shop have a notice board where meeting dates could be displayed?

Does your business bring you into contact with schools or other institutions where leaflets or copies of AR could be read?

Does your library or community centre have a board for notices of local activities?

Do you explain to the starring teenager why you can't have three antennas on? If

Do you offer assistance to the struggling student?

Do you bring the hobby into your conversations with non-amateurs occasionally?

There are endless possibilities. I am not demanding that all members rush out and start preaching, but if we wish to retain our privileges and the strength of the Institute to speak up for us, surely we can each make some effort towards encouraging potential operators, or persuading current non-members to join the Institute.

73, Brenda VK3KT



VK2 Mini-Bulletin

AMATEUR RADIO HOUSE

Is located at 109 Wigman Street, Parramatta. It is open from 11 am to 2 pm Monday to Friday and from 7 to 9 pm Wednesday evenings. Telephone (02) 689 2417 during these times.

REMEMBRANCE DAY CONTEST

See July Amateur Radio for rule details. For the past two years, VK2 has been the winning Division. Can we make it a third time? I am sure that we can if as many VK2s as possible set aside some time during the weekend of August 16 and 17, to have as many contacts as possible. Follow this by the all important submission of the log. The RD opening address will be transmitted before the 6 pm start and VK2WI will commence at 5.30 pm with the weekly news bulletin followed by the opening address. There will not be the transmission at 11 am on Sunday, 17th, but the evening session at 7.30 pm will be as usual.

SEMINAR AND DINNER

It has been decided to hold the next VK2 Seminar at Amateur Radio House on Saturday, September 13, and a Dinner on Saturday evening, October 11.

Members are reminded of the monthly barbecue at Dural on the first Sunday of the month - August 3 and September 7.

The Fireworks evening was held in ideal weather on May 31, with an attendance of over 100. Next year's event will be held on the Saturday evening before the June long weekend.

160 METRE BROADCAST

The frequency for this broadcast is to change. The present frequency of 1.825 MHz now falls within the Band Plan DX-Window. It has been decided by Council to change, particularly with our evening transmission. The chosen frequency is 1.845 MHz. The old frequency will be retained in the transmitter as an alternative channel, should the need arise. The VK2RSY Beacons at Dural, will expand into the higher microwave regions.

The next systems will be on the test frequencies of 10.300 GHz and 24.100 GHz (subject to licensing approval). The Division is to develop a multi-mode packet repeater for installation at

VK2WI. This will be followed by a Bulletin Board facility.

CENTRAL COAST ARC

The Central Coast Amateur Radio Club is to develop a packet repeater on two metres and an ATV repeater. (Input AT1V on 70 and output at 50 cm). They conducted further tests on May 25, to site-check a proposed two metre WICEN site, west of Cessnock.

In late May, the Tamworth two metre repeater, VK2RTM 6750, was vandalised and much of the equipment damaged.

The investigation for an alternative channel for the Liverpool and District repeater, VK2RLD continues. The need to change is caused by the recent location of a pager transmitter 200 metres away, 37.500 kHz from its present input.

MOSQUITO RESTORATION

There has been a good response with equipment offers for this project. Perhaps it is time to also start rounding-up some of the old WWII equipment which is still around in original or mint condition. While display and storage presents a problem in many cases, it will not be long before much is lost for all time and the various museums will be seeking it. Any thoughts on how best to preserve equipment of yesterday's?

REMEMBER?

A reminder to all Clubs. The next Conference of Clubs will be held on Sunday, November 2. The closing of the agenda is mid-September, so any items should be raised this month at your meetings and submitted without delay to the Divisional Office.

Also, at the time these notes were being prepared, there had been a poor response from Clubs for the details and questionnaire regarding insurance.

FIELD DAY

The Oxley Region Field Day was held at Port Macquarie over the June long weekend, in ideal weather conditions. Registrations exceeded 150. The next country field day will be the South West Zone, which will be held in the Riverina during

October. Details later.

WICEN

Coming activities for WICEN include the City to Surf in Sydney, on Sunday morning, August 10. The Car Rally at Bateleurs Bay will be held on the weekend of August 26-28, and the Canoe Classic on the Hawkesbury over the weekend October 18-19. Registrations to attend may be given on the weekly VHF Sydney nets — Thursday at 8.30 pm or telephone the Divisional Office at the times and number above.

Steve Boyd VK2DNN, is the Acting-WICEN Coordinator. The VHF 7150 repeater transmitter is currently being re-built.

JOTA

This will be held over the weekend October 18-19. Now is the time to contact your local group. If you have no regular group, but would like to offer, then register with the Office.

DISPOSALS LIST

A new list is available from the Office by sending a SAE. There has not been much change to items available from the May list, however. Publications stocks are also low at the moment. A range of most sizes of the t-shirts, leisure shirts and wind-cheaters are still available.

NEW MEMBERS

The VK2 Division of the WIA welcomes the following new members.

B Badghe VK2BKB, Liverpool; JM Brett VK2PJB, French's Forest; AG Brodie VK2BYA, Junee; D S Brown VK2JAG, West Ryde; R A Clark VK2JIN, Wimbley; LE Cooke Assoc, Stockton; D Dauner VK2EDD, Bankstown; RJ Foster Assoc, Hornsby; RJ Gifford-Moore VK2XEU, Artarmon; R S Harris Assoc, Hay.

F G Izon VK2DQX, Farnborough Heights; FJ Manthey VK2MKT, Birmingham Gardens; S Murdoch VK2TIE, Wyee; IL Norman VK2ZIN, New Lambton; M E O'Ryan Assoc, Concord; G R Parsons VK2DUP, Sanctuary Point; CJ Proud Assoc, Fairfield West; P J Sturt VK2ZRT, New Lambton Heights; W Thompson Assoc, Cessnock; JE Weddon Assoc, Cessnock.

Intruder Watch



Bill Martin VK2COP

FEDERAL INTRUDER WATCH CO-ORDINATOR
33 Somerville Road, Hornsby Heights, NSW. 2077

Starting off with the unpleasant news of how the amateur bands were disrupted in April, we have the following statistics:

321 Am intruders; 162 CW intruders; 102 using RTTY; 48 other modes, and 73 Intruder stations gave their call signs.

Probably there are those who will say, "Wait a minute — 73 stations gave their call signs? Well, if you know who they are, why don't you say something about it?" Why, indeed?

Unfortunately, it is not as simple as that. Knowing the call sign does not always tell us where they are, or who they are. Also, obviously, a great many of these stations are working with the blessing of their country's administrations!

There is not much we can do about that, short of declaring war! However, we can continue to appeal to the various administrations, and hope that, sooner or later, their conscience gets the better of them. Meanwhile, thanks to those who send in reports for April 1986, via VK1NINJ, VK2s COP, DEJ, DVW, EHQ, PS, SWL, G H A Bradford, VK3s LC, XB, VK4s AKX, AV, BG, BHJ, BTW, KAL, KHZ, VK5s BJJ, GZ, VK6s JQ, OD, RO, XV, XZ, VK7RHK, VK8s HA and JF.

MORE TAXI CABS

The problem of the Asian activity on 28 MHz,

allegedly coming from Hong Kong, appears to be building into a real problem. I received a letter from Phil VS6CT, who said that the taxi cabs in the colony were indeed using 28 MHz, and he supplied me with a cassette tape of these signals, copied locally. All are in Cantonese, of course. The Intruder — Watch is working with the IARU International Monitoring System Co-ordinator on this matter, and I have sent a letter off to the DDCI to see whether they can let the Hong Kong authorities know that the chaos the cabs are causing is not internal to their borders, and when the sun cycle gets it's act together, there will no doubt be a lot of disgruntled 10 metre enthusiasts who will be finding that they have called a cab! (Which is okay if one is interested in seeing Hong Kong, but I warn you, the fare will be astronomical!).

COMPLAIN NOW!

Seriously, now is the time to start complaining, before the lower half of the band is full on non-amateur traffic. So, if you hear 'em — report 'em. TNX. (They are currently being heard up to 28,600 MHz). The people who operate the beacons in the 10 metre beacon segment should have an interest in keeping the frequencies clear.

NEW CO-ORDINATOR

Bill Wilson VK3DXE, has been appointed the new IV Co-ordinator for the Victorian Division of the WIA. Welcome to the club Bill, and we look forward to your input. Bill replaces Steve VK3JY, who has had to relinquish the post.

Still looking forward to the solar cycle improving, but this will be a mixed blessing, with no doubt also an increase in intruder activity.

JAMMERS CAUSE PROBLEMS

Henry VK2ZHE, passed on some disturbing news in May — a medical emergency was taking place on a yacht off Papua New Guinea, and the amateurs who were handling the traffic had to try and battle through a jamming station, which, at a guess, was probably trying to jam Radio Tirana, which operates on 14,320 MHz.

The jammer, which identified as "SM" has been heard before, jamming Radio Beijing, so we can guess from whence it came. Makes one wonder if these people who indulge in these practices have really grown up?

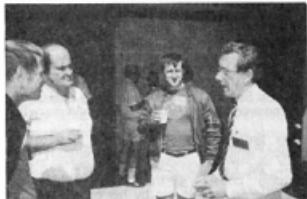
So that's about it for another month. I will say 73 and look forward to hearing from any amateur operator or SWL who hears intruder stations on the amateur bands.



VK4 WIA Notes

Bud Pounsett VK4QY
Box 638, GPO, Brisbane, Qld. 4001

This month's notes depict the 1986 Club Conference in photographs. The photographs and captions are courtesy of Bud Pounsett VK4QY.



Michael Owen VK3KI, speaks with David VK4AFA (left), Peter VK4KIP, and Michael VK4YOB.



David Jerome VK4YAN, Queensland Divisional President, with other delegates listens intently to a lecture on packet radio given by John Bews VK4KJB.



During morning tea, Bill Sebbins VK4XZ, talks to Ross VK4IY and Charles VK4BPI.

Below:
Another view of delegates.



LET'S REMEMBER HERTZ

1866 is the centennial year of Heinrich Hertz's pioneer experiments in electro-magnetic waves. It was in November/December 1866, when he was a professor at the Technical University of Karlsruhe, Germany, that Hertz first watched the discharging of a Leiden jar (nothing else than a large capacitor) through a spark gap, which was in the centre of a three-metre-long copper wire.

Hertz realised that in a similar wire with a gap two-metres apart, small sparks were also generated without any physical connection between the two wire-gap systems. These were the first transmitter and receiver of electro-magnetic waves.

Only a few months later, Hertz found the wavelength of the oscillations (eight metres), their velocity in free space, the influence of resonance, nodes of zero electric effects on the wires, the rectilinear propagation of the waves and their reflection from metal surfaces. Performed in the largest auditorium available, he experimented with wave-lengths down to half-a-metre.

Thus, Heinrich Hertz laid down the fundamentals of all varieties of modern-day communications, including amateur radio. But he did not live long enough to see the results of his work; he died on January 1, 1894.

Written by Walt Parmentier DJ5JH in QST February 1986, and contributed to AR by Steve Mahony VK5AIM

Ian J. Truscott's ELECTRONIC WORLD

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AR86

Five-Eighth Wave



The 1986 Clubs Convention, which was our third such event, was held over the weekend of April 11-13, at Cooranga YWCA Conference Centre, Aldinga Beach.

Clubs represented were: Adelaide Hills, Lower Murray, South East (SERG), Second Adelaide Scout Radio Group, LEPARC, ACBRO, SA ATV Group, Darwin, South Coast, Elizabeth and Port Adelaide.

It was the first year that the Adelaide Hills ARS and the Association of Citizens and Band Radio Operators have attended, and I think we all gained much from their input.



From left: Jack VK5FV, Representative from Port Adelaide ARC, Brian Harrison, Australian Association of Citizen and Band Radio Operators Inc, Gordon VK5KG, Secretary Adelaide Hills ARS.

Photograph courtesy Peter Koen, Secretary VK5BPA

DOWN TO BUSINESS

Friday night was informal. Saturday morning saw the start of the official business and after a welcome and introduction from President Dick Boxall, and a brief word from the delegates about their clubs, we started on the Federal Convention Agenda items. During VK5 first. Prior to the start of the afternoon session, we presented Wendy Clegg (wife of VK5AMK), Gill Wardrop (wife of VK5AWM), and Liz Ratcliffe (wife of VK5AGR), with a pot plant each as a thank you gift for their Catering Duties at this and the past two Conventions.

STUDY OF AUSTRALIA



VK5 State President, Jenny VK5ANW, with Max VK3ZS, WIA Federal Historian.

Photograph courtesy Peter Koen, Secretary VK5BPA



Wendy Clegg receives a gift for organising the menu and cooking for the past three Clubs Conventions. Husband David VK5AMK, is Head-Buyer.

Photograph courtesy Peter Koen, Secretary VK5BPA



Gill Wardrop receives a gift for cooking for the past three Conventions.

Photograph courtesy Peter Koen, Secretary VK5BPA



Liz Ratcliffe was presented with a gift from the then President of the WIA (SA) Division for her assistance with the meals at the past three Conventions.

Photograph courtesy Peter Koen, Secretary VK5BPA

INFORMATIVE TALKS

After lunch, we were given some most informative "Brief Talks" by Ken Hall VK5AKH, the Federal Awards Manager, John Gough VK5OD, the Divisional QSL Bureau Manager, Bill Wardrop VK5AWM, the Divisional WICEN Director, and David Koen, Secretary of the Second Adelaide Scout Radio Group. (Peter is perhaps better known, unofficially, as our "Display Man", which was the topic he chose to talk about).

Many interested visitors attended one or more of the Saturday sessions. It has been suggested that we did not advertise it enough, in fact, "kept it a secret." This was not true, however, if we had made it an open invitation to all, without knowing who would be turning up, it could have made catering and seating arrangements rather difficult. Anyone who feels that they would like to attend in the future need only contact whoever is doing the organising so that we know how many will be attending.

GUEST OF HONOUR

Max Hull VK3ZS, the Federal Historian, was our Guest of Honour, and after dinner speaker on the

Jennifer Warrington VK5ANW
59 Albert Street, Clarence Gardens, SA. 5039

Saturday night. Max showed us a very old film, recently transcribed to video, on Thomas Edison's assistant demonstrating and describing some of Edison's earliest experiments. Max then gave us a very interesting talk on his own early life and how he got involved with radio.

Later still he showed us some slides of historical interest, which had been put together, with commentary, by Chris Long, former assistant curator at the Melbourne Museum of Applied Arts and Sciences. Chris also worked with Peter Wolfenden VK3KAU, and Max, on a tape of Historical Sounds, including the voice of Marconi, to commemorate the WIA's 75th Anniversary last year.

Max presented a copy of this tape to the Division, which by now you may already have heard, via the Broadcast. Members can also purchase copies if they wish. Max was accompanied on this trip by his cousin, Murray Hull VK3KDL, and we were delighted to have both of them with us.



From left: Carol VK5PWA, and Jack VK5AJK, from Lower Eyre Peninsula ARC, David VK5AMK, (then Council Member), Don VK5ADD, VK5 Secretary.

Photograph courtesy Peter Koen, Secretary VK5BPA



Club Representatives and the WIA (SA) Council.

Photograph courtesy Peter Koen, Secretary VK5BPA



Club Representatives listen intently to Max VK3ZS, WIA Federal Historian.

Photograph courtesy Peter Koen, Secretary VK5BPA

AND INTO DISCUSSION

After listening to the Broadcast on Sunday morning, we finished the remaining Agenda items and Carol McKenzie VK5PWA, the President of the Lower Eyre Peninsula ARC led us in a discussion on Long Range Plans for the Continuing Growth and Development of the South Australian Division of the WIA. Sub-headings under this title included, the role of the Divisional Council as an Administrator, the planning and

implementation of zones, whether a separate Adelaide club should be formed, the place within the organisation for the Burley Griffin Building, its availability to members, use of — by members and groups, and other activities. These were not necessarily the views of Carol or LEPARC, but were being voiced on behalf of many country members, who seem to feel that their fees go to pay for a building and social activities, which, on the whole, they never see or use.

I think, in the end, we decided that about 80 cents per member was the sum we were talking about (having removed the Federal component and costs for such things as the insert in AR, postage, telephone, stationery, and insurance, all of which are of indirect or direct benefit to the country amateurs. One other benefit which gets overlooked by many is the Sunday Morning Broadcast, which is certainly of great benefit to all country amateurs, whether members or not, also costs of repairing or replacing tape recorders, tapes, and the transmitter room equipment do not always come cheaply, despite our band of willing volunteers who are always endeavouring to keep costs down.



Max VK3ZS, addresses the Convention.
Photograph courtesy Peter Koen, Secretary VK5BPA

management and administration of the SA Division and encourages all member clubs to nominate a delegate to the Institute as provided for in Rules 105 and 106 of the Constitution."

It was moved by Darwin ARC and seconded by the South East Radio Group, and carried. The business closed at 12.55 pm after which we had lunch and packed up to go home.

SPECIAL THANKS

I would like to thank all who attended for their continued support, and the fact that, despite some "vigorous discussions", some very solid ground-work was laid, on which to build a better understanding between Divisional Council and the Affiliated Clubs.



Meal-time at the Convention.
Photograph courtesy Peter Koen, Secretary VK5BPA

that must go into it. There was also a surprise finale this year, when the trophy for the highest aggregate of points went to VK7! That should make the VK3s and 5s even more determined next year. *See you next year at SERG!* !

STILL MORE J-150 AWARD WINNERS

53VK5NTK	67VK5BEG	81VK5ADD	95VK5YX
54VK5TAJ	58VK5COP	82VK5MV	96VK5PDT
55VK5VJ	68VK5BZ	83VK5BZ	97VK5D
55VK5AVK	70VK5BPA	84VK5MMP	98VK5NDB
57VK5NW	71VK5AE	85VK5MMP	99VK5COP
58VK5BJA	72VK5NCV	88VK5ANWH	100VK5COP
59VK5QU	73VK5B2BM	87VK5PEB	101VK5COP
60VK5V	74VK5B2T	87VK5PEB	102VK5COP
61VK5BLS	75VK5ADQ	89VK5NDB	103ZL3KR
62VK5GAS	76VK5NGB	90VK5GAS	104VK5ATN
63VK5B0B	77JH1QY	91VK5PMW	105VK5BWF
64VK5BUH	78VK5VQ	92VK5PMW	106VK5BWF
65VK5AOV	79VK5AJK	93VK5BWH	107VK5AS
66VK5AEQ	80VK5VQ	94VK5QW	108VK5V2R
109VK5NCV	133VK5BEG	156VK5BMB	178VK5V2E
110VK5NTT	134VK5BZ	157VK5BMB	179VK5V2E
111VK5NTT	135VK5QK	158VK5NWH	181VK5PDM
112VK5NTT	136VK5QX	159VK5NWH	182VK5PEM
113VK5YX	137VK5SIT	160VK5NWH	183VK5CNWL
114VK5YX	138VK5QO	161VK5QO	184VK5NKA
115VK5PDT	139VK5N8E	162VK5QO	185VK5NKA
116VK5PDT	140VK5N8E	163VK5QO	186VK5QD
117VK5PRB	141VK5NEB	164VK2CXX	187VK2V0X
118VK5PRB	142WTK5A	165VK2CXX	188VK2V0X
119VK5PRB	143WTK5A	166VK2CXX	189VK5QZ
120VK5A0H	144VK5S4K	167VK2CXX	190VK5QZ
121VK5PQV	145VK5C9D	168VK5SRV	191VK5AVQ
122VK5NEV	146VK2NPJ	169VK5VQ	192VK5SQZ
123VK5NEV	147VK7NBF	170VK4BAY	193VK5AVQ
124VK5NMX	148VK5SAK	171VK5AWN	194VK5NOS
125VK5NEV	149VK2N0G	172VK5AWN	195VK5NOS
126VK5NEV	150VK5QD	173VK5AWN	196VK5SKA
127VK5OB	151VK3PKD	174VK4BHW	197VK5SKA
128VK5OB	152VK3PKD	175VK5QX	198VK5SKA
129VK5NP0	153VK7B	176VK3ABO	199VK5NEW
130VK5NP0	154VK4R4HQ	177VK2V2RM	200VK5NEW
131VK5QH	155VK5MPC	178VK4BJE	201VK5UH
132VK5QW			202VK5NEW
			203VK5NEW

NOTE: * denotes first Stateside

TEST EQUIPMENT

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From left: Larry VK8LM, Darwin ARC, Steve VK3YVV and Dave VK3DGJ from the South East RG and Bob VK5A0Z, Leader of VK5BPA at the VK5 Clubs Convention.

Photograph courtesy Peter Koen, Secretary VK5BPA

From left: Colin VK5JP, Representative from Lower Murray ARC, Charlie VK5ACF, Representative from ATV Group, Steve VK5A0Z and Vince VK5ZSV, both Representatives from the Elizabeth ARC.

Photograph courtesy Peter Koen, Secretary VK5BPA



Steve VK5A0Z and Vince VK5ZSV, Representatives for Elizabeth ARC.

Photograph courtesy Peter Koen, Secretary VK5BPA

MOVED AND SECONDED

A motion was drawn up as a result of this discussion, which states, "This Conference supports the Divisional Council in the

implementation of zones, whether a separate Adelaide club should be formed, the place within the organisation for the Burley Griffin Building, its availability to members, use of — by members and groups, and other activities. These were not necessarily the views of Carol or LEPARC, but were being voiced on behalf of many country members, who seem to feel that their fees go to pay for a building and social activities, which, on the whole, they never see or use.

I think, in the end, we decided that about 80 cents per member was the sum we were talking about (having removed the Federal component and costs for such things as the insert in AR, postage, telephone, stationery, and insurance, all of which are of indirect or direct benefit to the country amateurs. One other benefit which gets overlooked by many is the Sunday Morning Broadcast, which is certainly of great benefit to all country amateurs, whether members or not, also costs of repairing or replacing tape recorders, tapes, and the transmitter room equipment do not always come cheaply, despite our band of willing volunteers who are always endeavouring to keep costs down.

It was moved by Darwin ARC and seconded by the South East Radio Group, and carried. The business closed at 12.55 pm after which we had lunch and packed up to go home.

THE SOUTH EAST RADIO GROUP CONVENTION

For many years people have been telling me that I should go down to Mount Gambier, on the Queen's Birthday long-weekend in June, for the SERG Convention. How right they were! Even the weather was reasonably kind to us and as for the hospitality, it could not be faulted. The SERG ladies did a magnificent job with their catering (for 200 on the Sunday), and the events, etc all ran smoothly with the help of the local OM's. I realise that they have been doing it for 22 years and so probably have it 'down to a fine art' but when you realise how many active members of the Club there are, it really makes you appreciate the work



Over to You!

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.

VK HANDBOOK

There is a perceived need for an Australian Radio Handbook. Apart from one or two slim volumes; licensing requirements, operating techniques, DXing, etc, are, to date the only subjects so far covered in existing literature published in this country. Basic theory is adequately covered in overseas publications such as the ARRL and RSGB handbooks, Scroggins' Foundations of Wireless, etc. Unfortunately, much of the constructional content of overseas books supply parts which are at best difficult — usually impossible to obtain in VK.

A present, there appears to be a significant level of interest in antennas, simple QRP transmitters and related devices, DC receivers, measuring instruments and so on. Looking through back issues of AR, it is possible to find a wealth of interesting articles by a number of Australian authors, all making use of locally available components. I put to the membership, would you like to have a handbook, one which attempts to cover a range of technical subjects and projects, put together by Australians?

I would be happy to be involved in such a project, but I do not have the qualifications or the resources to do it on my own. If you think the idea has merit, or would like to contribute time, effort or material, please communicate your comments to the Publications Committee.

Yours fraternally,

Drew Diamond VK3XU,
Lot 2, Gatters Road,
Wonga Park, Vic. 3115.

The Publications Committee has discussed the possibility of producing a handbook along the lines suggested. We need some idea of how many could be sold. If you, the reader of AR, would be interested in contributing to and/or buying such a book, will you please let us know of your interest. Ed.

suggestion is that Morse qualifications should only be necessary for those who genuinely like it. An endorsement, after passing the Morse test, would allow the holder to have the use of the LF portions of the bands. This would allow those not interested in Morse, full access to the bulk of the HF bands. Sounds reasonable? I think so.

Yours fraternally,

Drew Diamond VK3XU,
Lot 2, Gatters Road,
Wonga Park, Vic. 3115.

CONGRATULATIONS

Having been a member for a short time, I admit to being very impressed with the efforts in publishing the Call Book and the monthly magazine. Congratulations on both.

Yours sincerely,

Bill Corrck VK3CBG,
7 Glenliss Street,
Balwyn, Vic. 3103.

AMATEUR RADIO COOK BOOK OR FOOD FOR THOUGHT

In answer to the comments of Les Daniels VK2AZX, in *Over to You!* AR, Vol 54, No. 5, headed *Food Recipe Cook Book*.

First of all Les, I would like to thank VK2ZYE for the refund which I received via VK2MMW. I am afraid I have not had the pleasure of meeting VK2ZYE in this matter (perhaps another misnomer?).

I am also very pleased to see that the wording of the advertisement in question has been changed, both in AR and in another well-known amateur radio magazine and no longer appears as it did in AR, January issue this year, and that the price has dropped to \$2, or am I wrong? Perhaps the concept of the figure \$2 in the metropolitan areas becomes \$5 in the Bingara area?

In your reply, you mention wombats in the metropolitan areas Les, I'm afraid I've never seen them up here in Bingara, wouldn't know one if it was served to me on a plate, although I know that DOC has been known to trap them in railway marshalling yards. I do, however, get a lot of galahs on my antenna, and I am having a great deal of trouble from power line interference, but I suppose I will have to write to the egg board about that.

If you ever come up this way Les, pop into Bingara, you will find the beer much cheaper, according to your comments on the price of the book compared to schooner of beer.

I am not having a dig at you for raising club funds, Old Man, but I really wish I could get the fish in the Gwydir River to read AR's *Over to You!* I would probably get a bite or two!

73,

Glyn Gibbons-Johns VK2DJV,
144 Maitland Street,
Bingara, NSW. 2404.

Stop cooking now chaps, no more, please! Ed.

DISCUSSION PAPER

The paper *Amateur Radio — Future Direction* by Jim Linton VK3PC and Roger Harrison VK2ZTB, published in AR, February 1986, was a discussion topic at the 1986 Conference of Clubs of the Queensland Division and the following is a summary of statements and opinions expressed by the delegates and observers from 17 clubs and groups present at this conference. (As a record it is not necessarily authorised by the VK3 Division — Ed).

The majority were against any lowering of the present examination entry standards or the granting of certain privileges to those who had not earned them by not reaching an adequate level of proficiency.

Cairns club members viewed with concern the idea of adopting the Japanese Telephony Begin-

ners Licence, which was the result of a commercial arrangement between the government, the JARL, and equipment manufacturers to create a market for their products.

Furthermore, club members agreed that they did not want to see that sort of thing happen in this country and stated that we must not permit our hobby to be influenced, manipulated or altered by minority groups with selfish, commercial or pecuniary interests.

Surprisingly, many novices were not in favour of the proposals, and indeed two young observers from the Oakley State High School Club said they did not think that the Novice Licence should be handed out on a platter, but should be worked for and that young people could cope with the present Novice Licence.

A Gold Coast delegate said that, as a member of a computer users group, he found that computer people were not interested in amateur radio.

The Central Queensland Branch thought that we have nothing to offer the young computer group as they have modems and use the telephone so why bother with amateur radio.

The radio amateurs group said that many school age people are not interested in amateur radio because computers are all the 'rage'.

The Chairman, Ron Smith VK4AGS, said, "Why does the press give publication to CB and is unaware of amateur radio activity?"

Gympie Club stated that we do not get publicity because we do not do anything about it and many agreed with this point.

It is clear that the authors have not done sufficient research into why young people are not being attracted to amateur radio.

Instead of trying to play the 'numbers game', as was done with CB and engaging in 'Flights of Fancy' about computers, the authors should have consulted radio clubs around this country who have, for many years, been trying to interest young people in amateur radio. They would have then learned the cold hard facts — mainly that you can only be successful if young people themselves are interested.

Furthermore, 'Brownie Badge' licenses, with the lowering of standards and 'giving something for nothing', would certainly destroy incentive at a time when the hobby is becoming more interesting and diverse.

In our society today there are those who want to be university graduates without studying — those who want to be paid without working, etc, and now those who want to be amateur radio operators without meeting any standard.

If those who are calling for a lowering of accepted standards would devote half as much time to studying as they do to writing letters and whining they would have their licenses as other have done.

Recently, a young Queenslander, who has been blind since birth, obtained his unrestricted licence with an exam pass of 91 percent.

So humbly submitted that this achievement completely refutes the ridiculous and specious statement by the authors that the present licence structure is not suitable for computer operators — if they cannot cope with it — as this young man has done — then they would or should never become amateur radio operators.

From which element would the amateur radio service gain its strength, those who make an effort to succeed or the whingers?

We have seen and heard what has happened to a portion of the radio spectrum in this country populated by those who have not had to exert any mental effort in order to operate a station.

It seems one of the immutable laws of mankind is that you take care of something in direct proportion to the effort necessary to obtain it.

Most radio clubs have certain ideas about the future of amateur radio which they would be prepared to put to a committee of members with an adequate background and experience in the

hobby — such a committee would need to be completely independent of and not connected in any way with the electronics industry.

If we are to interest our young people in amateur radio, not only as a hobby, but as a training ground for future electronic technicians, there must be motivation and an incentive to succeed by learning and experience, and not by the lowering of standards.

Therefore, the world's oldest radio society and its affiliated clubs must come forward with much better thought-out proposals than these and which reflect the views of the majority of its members.

Ted Gabriel VK4YG,
Cairns Club Delegate,
PO Box 245,
Ravenshoe, Qld. 4872.

THANKS VK5

I would like to say thank you to the WIA South Australian Division for organising the "Jubilee 150 Award". I received my certificate in mid-May and was very pleased and impressed with it.

Also, my thanks to all the VK5 amateurs that I had some very enjoyable QSOs with. It took approximately 15 hours of on-air time to gain this award — 15 hours definitely not wasted as I enjoyed every minute.

73,

Arthur Brean VK6SY,
28 Benmow Street,
Trigg, WA. 6029.

DISCUSSION PAPER

I write, yet again, to put forward some more comments and views about the Discussion Paper, and the ensuing discussions.

It seems, that once again, CW is attacked. All the letters referred to appear in June *Amateur Radio*.

I have only one comment for Neil Trainor's letter — *Hear! Hear!* (Particularly the part about costs).

I cannot agree with Max Ives when considering these two points:

1. Okay, so we have a Kindergarten Licence. Like kindergartens in our schooling system, the Kindergarten Licence is not a compulsory item, however it can be beneficial to those who might like to graduate to higher levels but are unsure of their initial steps to get there. Some people lack time and/or facilities to go straight to the higher licence, but wish to get into amateur radio, nonetheless.

2. Max intimates that everyone knows, through unknown means, that amateur radio is what they want. I feel this is wrong — not everyone has amateur friends/relatives to give them an initial sample of life with amateur radio. Some people take the gamble anyway, study for and get their licence, and are, I hope, glad of their effort. However, people are basically lazy and are reluctant to do anything they are unsure of. These people would be more easily encouraged to join amateur ranks if they weren't faced by the daunting task of studying for the Novice Licence.

Maybe I am too young to understand the reference to the "nine days wonder," but I do understand the proverb, and what it means. It is a lot easier to lead a horse to water if it knows what you are leading it to, and it wants a drink! More horses (potential amateurs) will drink (amateur radio) if the water looks clean (unthreatening) and/or is easier to drink. Obviously, if the horse is not thirsty (uninterested in amateur radio) there is little anyone can do, easier licensers or not.

Peter Frederick has some interesting ideas and caused a slight modification to my own ideas. I disagree with his suggestion for the removal of the CW requirement. Sure, five words-per-minute is painfully slow for some, but for others it is the best they have yet achieved.

Peter then goes on to say: "The real traditions of amateur radio are on the HF bands." Agreed. So why remove CW, part of those traditions? Is it expected for all to get to 10 WPM straight off? Some people cannot get to classes and need the on-air experience to get up to those speeds. Would these people be denied full calls because of their geographical location?

I have a suggestion for a solution to the licence

argument, and still make amateur radio more accessible.

Introduce one new licence (say the Beginner Licence). Give the Beginner limited band space within the Novice allocation on 10 metres. Allow them to transmit 12 watts SSB within this segment. Place a time limit for the holding of a Beginners Licence to one or two years, non-renewable. In this way, the Beginners are on HF with opportunities to work DX and are also able to communicate with all other licence classes, but still with some encouragement for them to upgrade.

Include restricted data transmission facilities for Novices and retain the CW requirement as it stands.

Allow Limited licensees to utilise SSB (and possibly Data), on the same 10 metre segment as the Beginners.

This permits some interaction between all licence classes, and also gives a simple upgrading system. Holders of the Beginners licence can study the slightly more difficult Novice theory, and five words-per-minute CW, or they can study the much more difficult theory for the Limited licence with no CW.

I would like to say that I am opposed to the Canadian Proposals.

It is good to see such discussions flowing on such an important issue and I hope these comments may provide further ideas.

Yours sincerely,

Conrad Canterbury VK3PHW,
26 Pyke Street,
Tatura, Vic. 3616.

WANT TO TRADE? ??

I am interested in contacting Australian amateurs who would like to trade keys made in Australia for CW keys made in the USA. The particular keys I am interested in are old; eg WWI and earlier, and hard to locate.

I am a serious collector, motivated out of a fascination and love of the objects — I am not seeking profit.

Thank you.

Warren E Burbit K2UVV,
46A Mile Road,
Suffern, NY. 10501. USA.

HOW DO YOU GET IT?

Greetings and thank you for the wonderful job you are doing with *Amateur Radio*. It is a publication of which you can be justly proud.

I have a good friend, Ray Pellowe VE3BAK, who is the editor of the Radio Society of Ontario's magazine *The Ontario Amateur*. I would very much like to send him copies of our magazine. Can you please advise me as soon as possible the subscription rate for such a delivery.

Could you also please advise the copyright position if he ever wanted to use one of your articles in their magazine.

Yours faithfully,

Ron Churcher VK7RN,
PO Box 277,
Devonport, Tas. 7310.

Subscription rates for non-member direct subscribers in Canada are \$248 per annum surface mail or \$470 per annum air mail. You may either pay yourself, or the overseas amateur can be billed. We do not object to occasional reprinting, perhaps two or three items a year, as long as acknowledgement is made of author and source. — Ed.

TECHNICAL CORRESPONDENCE

I enjoyed reading John Gazard's article *Aerials and Earths* in May AR, because he managed to avoid too much mathematics and technicalities. Consequently, I understood enough of it to hear an alarm bell ringing when he described how to calculate aerial impedance by measuring SWR. The alarm bell sounded because although he specified 50 ohm cable he did not specify the length to be used in the test.

Unless the coaxial cable is a multiple of a half wavelength in length, the SWR at the rig will not be true reflection of the antenna impedance. In

fact, by using a length other than halfwave multiples, it is possible to trim his antenna to 1:1, even if he has to adjust the coaxial length in the process.

I guess John meant to specify a coax length of halfwave multiples.

As a matter of interest, I checked the SWR on my three element Yagi with the normal coax of random length (that means I have not got around to measuring it yet). I then added a two metre length of coaxial cable and tried again with the results as below.

Frequency	Normal Coax	2m Added
14.005	1.75:1	1.3:1
14.100	1.32:1	1.05:1
14.150	1.20:1	1.06:1
14.200	1.05:1	1.20:1
14.250	1.00:1	1.30:1
14.300	1.16:1	1.51:1
14.345	1.30:1	1.75:1

Makes you think doesn't it.

Yours sincerely,

Noel Davies VK7EG,
30 Spencer Street,
Burnie, Tas. 7320.

FOLLOW-UP PRACTICE

Having been a member of the WIA and holding a call sign for the past three years, I have often read in AR criticism of those new operators as being black box operators.

I say this is not always the case, but who can blame those who are? For instance, where are the post-theory practical classes for those people after completing the theory and passing the exam? Down the WIA run on encouraging such classes or are they content to push for theory and passes only, content then that membership may increase?

I have made many inquiries during the past few months and have found it difficult to find anyone prepared to take up such an assignment.

I am sure there are many amateurs in the fraternity who would be prepared to attend an organised group and pay for the instruction and any materials used. It may even attract new members for the Institute.

What about WIA — a practical service to members.

Yours faithfully,

P H Gibbs VK3AQ,
37 Golwoold Close,
Dingley Village, Vic. 3172.

AR AND AMATEUR RADIO

I personally feel that *Amateur Radio* magazines in 1986 have been a little more interesting in comparison to 1985. I think we over-did the anniversary a bit!

As a long time constructor or "Fiddler", I like the technical articles best. It behoves all amateurs to have a go at building some bits of gear. After all, that is what amateur radio is supposed to be about although modern technology is getting a bit beyond a lot of us.

It is hard to please all of the people, all of the time!

Keep up the good work. It is appreciated and enjoyed by some.

73.

Steve Mahony VK5AIM,
19 Kentish Road,
Elizabeth Downs, SA, 5113.

ATTRACTING YOUNG PEOPLE

The increasing average age of the amateur fraternity is great. I hope we all go on to 100-plus years. The enticement of the young into amateur radio is another problem. My age is 57-years and I have only held a licence for one year.

There are many arguments for and against being an amateur — equipment cost, if one is to be in the swim, is I feel, rather high for young people entering the hobby. Home-brewing satisfying as it may well be, is not a complete solution to the problem.

I was initially shocked to hear a VK full call telling his friend that he is going to sell his two-metre rig and will then buy a UHF-band CB. Subsequently, I am now convinced on one point — as an amateur on air, I can only talk with other

amateurs, where-as on UHF CB, I can talk with family or friends. Perhaps, a better arrangement would be to have a common band, say on UHF, where both amateur and non-amateur can operate together. This may well attract young CB operators enlarge their horizons and attempt to become licenced operators.

Please don't talk to me about CB behaviour patterns, which, I have noticed on UHF CB, are better than can be encountered at times on two metres. This better behaviour on UHF, is, I feel, caused by the large number of novice operators, who, by existing regulations, are forced on to UHF CB.

Yours faithfully,

J R Kemp VK3CAY,
31 Maidstone Street,
Altona, Vic. 3018.

SPIDER QUADS

In 1970, shortly after I designed a "Hub" for Triband Spider Quads, the then editor of Amateur Radio, Ken Pincock, asked me to produce a "rush" article which appeared in the March 1970 issue.

Now, in 1986, I am still, six years after retiring, receiving occasional requests for kits from VKs. Perhaps a short resume will help explain the situation.

Following the publication of the article and advertisements, initially for the "Hubs" only, it became apparent that there was much more interest in complete kits than in bare hubs. So these were offered to the fraternity until about 1977, when Jock Valle VK3PZ, continued for some years.

Jock supplied kits until the early 80s. Hundreds were sold to VK, ZL and a few hubs to the USA and Europe. Towards the end, sales fell-off to about 12 kits per annum, which of necessity had to be built as a "batch" to obtain reasonable wholesale prices on materials, so he discontinued offering the kits.

Not wishing to become re-involved in the manufacture of these kits I sought, unsuccessfully, someone else to take it on.

Despite the lack of advertising, inquiries continued due to personal recommendations from satisfied users. I am sure there is at present a pent up demand for quad kits and 50 or more could be sold in the first year.

Does someone wish to add a two-element, multi-band, cubical quad to an existing range of antennas, or engage in manufacture as a "hobby" activity?

I do not wish to do it myself but I would like to see kits using my hub still on offer to Australia's amateurs.

I have done a quick costing and conclude that the price would be about \$350 for a kit consisting of Hub, Fibreglass Spreaders, 100 metres of 1.6 mm hard-drawn copper wire, Aluminium Ferrules and 50 metres of 45 kg (1.0 mm) mono-filament nylon line.

If anyone is interested could they please write to me for further information?

Yours faithfully,

Syd Clark VK3ASC,
30 Heritage Avenue,
Frankston, Vic. 3199.

SATELLITE MONITORING

The Department of Communications has begun a program to monitor the emissions from satellites positioned over Australia and the Indian and Pacific Oceans. The first stage of the project will be installed early in 1987 in the Australian Capital Territory.

The system will check satellite emissions to ensure they are not interfering with both land-based and other space communications. Once the system is installed, Australia could be called on by the International Telecommunications Union to help resolve any disagreements between countries on satellite-to-satellite interference.

The system consists of three earth stations, a spectrum analyser and a supporting computer.

SOLAR GEOPHYSICAL SUMMARY — APRIL

Solar activity was low in April with the exception of 24th when three M Class flares were observed. The flares arose from a new region which grew rapidly in the two days prior. They were observed at 0034-0055 UTC, and at 0340-0403 UTC and again at 0603-0707 UTC. The rapid growth of this region was shown by the sudden rise in the 10 cm flux after the 22nd. The region began to decay after the 25th and the values had dropped back to low levels by the end of the month.

The 10 cm flux readings were:
1=72; 2.3=71; 4.11=72; 12=73; 13=74;
14.15=76; 16.17=75; 18=21=74; 22=73; 23=81;
24=86; 25=85; 26=84; 27=82; 28=79; 29=76;
30=74. The average was 75.2 and the sunspot average was 20.4.

The running yearly average was 17.4 for October 1985.

GEOMAGNETIC

April 10 The geomagnetic field was at active levels for most of the day with brief periods of minor storm conditions. A-16.

April was an extremely quiet month even though the equinox months, such as April, are often more disturbed than average. The low monthly average of 7.3 made it the quietest month since 1980. The average level of magnetic disturbance has been falling over the past four years and is expected to reach a minimum around the time of the solar minimum.

HISTORICAL LARGE GEOMAGNETIC DISTURBANCES

The geomagnetic disturbance experienced on February 8, this year, was severe by any standard and its effects on communications were quite dramatic. How did the disturbance compare in severity with others in the past?

The following table lists the 20 most disturbed days since 1932, measured by the planetary disturbance index Ap.

Ranking	Date	Solar Cycle No	Ap Value
1	November 13, 1960	19	280
2	April 1, 1960	19	241
3	July 15, 1959	19	236
4	September, 1941	17	230
5	July 5, 1941	17	220

W1AW SCHEDULE for April 27, to October 26, 1986

W1AW code practice and bulletin transmissions are sent on the following schedule. This information may be of interest to the SWLs.

Slow Code Practice MWF: 0200, 1300, 2300;
TTfSSn: 2000; Sm: 0200

Fast Code Practice MWF: 0000, 2000; TTH: 0200,
1300; TTfSSn: 2300; S: 0200

CW Bulletins Dy: 0000, 0300, 2100;
MTWfTh: 1400

Teletypewriter Bulletins Dy: 0100, 0400, 2200;
MTWfTh: 1500

Voice Bulletins Dy: 0130, 0430

All times are in UTC. MTWfThSSn are days of the week. Dy is daily.

Code practice, Qualifying Run and CW bulletin frequencies: 1.818, 3.580, 7.080, 14.070, 21.080, 28.080 MHz.

Teletypewriter bulletins frequencies: 3.625, 7.095,

14.095, 21.095, 28.095 MHz.

Voice bulletin frequencies: 1.890, 3.990, 7.290,

14.290, 21.390, 28.590 MHz.

Slow code practice is at: 5, 7.5, 10, 13 and 15 WPM.

Fast code practice is at 35, 30, 25, 20, 15, 13, and 10 WPM.

Code practice texts are from QST, and the source of each practice is given at the beginning of each practice and at the beginning of alternate speeds. For example: "Text is from February 1986 QST, pages 9 and 85" indicates that the main text

6	Mar 28, 1946	18	215
7	March 1, 1941	17	205
8	October 6, 1960	19	203
9	February 8, 1986	21	202
10	September 22, 1946	18	200
11	July 8, 1958	19	199
12	February 11, 1958	19	199
13	September 6, 1982	21	199
14	March 25, 1946	18	195
15	March 24, 1940	17	190
16	March 30, 1940	17	190
17	October 26, 1960	19	186
18	March 25, 1940	17	185
19	August 5, 1972	20	182
20	March 27, 1959	19	181

FEATURES

i. Cycle 19 (peak sunspot number of 201 in 1957) made the largest contribution with eight entries. However, Cycle 17 (peak sunspot number of 119 in 1937) contributed six entries in spite of a relatively modest cycle in amplitude.

ii. Most of the disturbances (17 out of 20) occurred after the time of the solar maximum of that cycle.

iii. The equinox months (March-April and September-October) were the worst months with 13 entries.

iv. Even though the November 13, 1960 rates as the single most disturbed day, the period March 24-30, 1940 must rank as the worst week with three entries.

From data supplied by the Department of Science, IPS Radio and Space Services — April 1986



QSP

ODD, BUT TRUE!

Recently, a congregation was listening attentively to the minister deliver his sermon.

At one point in the service he asked, "Where is the Devil, now?"

Promptly, a voice replied, with a laconic amateur drawl, over the PA-system, "I'm outside the ... church in ...!"

is from the article on page 9 and the mixed number/letter groups at the end of each speed are from the contest scores page 85.

On Fridays, UTC, a DX Bulletin replaces the regular bulletin transmissions.

On alternate Saturdays at 2230 UTC, Keplerian Elements for active amateur satellites will be sent on 45.45-Baud Baudot on the regular Teletypewriter frequencies. The next date for transmission will be given in regular satellite bulletins.

W1AW CW and voice bulletins are sent on OSCAR-10, Mode B, when the satellite is within range. Look for CW on 145.840 MHz and SSB on 145.962 MHz.

Teletypewriter bulletins are 45.45-Baud Baudot, 100-baud ASCII and 100-baud AMTOR, FEC mode. Baudot, ASCII and AMTOR (in that order) are sent during all 1500 UTC transmissions, and 2200 UTC on TTHfSSn. During other transmission times, AMTOR is sent only as time permits.

CW bulletins are sent at 18 WPM.

During communications emergencies, W1AW has special bulletins as follows: voice on the hour; teletypewriter at 15 minutes past the hour and CW on the half hour.

W1AW is open for visitors to America from 8 am to 1 pm, Monday through Friday and on Saturday and Sunday from 3.30 pm to 1 am. Visitors are welcome to operate W1AW from 1 to 4 pm Monday through Friday provide they have a copy of their current amateur radio licence.

Condensed from QST April 1986

TOM ROBBINS VK5AQ

It is with regret that I record the passing, after a prolonged illness, of Tom on May 19, 1986, at the age of 67.

Tom was employed as an Assistant Draughtsman, by the Adelaide Electric Supply Company, (later The Electricity Trust of South Australia), from December 1936. He graduated as an Engineer at the beginning of the war.

During the war, Tom served as an Engineer Lieutenant on the HMAS *Perth*, which sank in Sunda Strait in 1942. Tom remained a Prisoner of War in Japan for the duration of the war.

He returned to work for ETSA in January 1946, in the Sub-station Department and was later appointed Manager of the Leigh Creek Coal Field, where he served for several years. He was later appointed Regional Manager Upper North at Port Augusta, and remained in that position until his retirement in 1978. He then continued to live at Port Augusta.

Tom obtained his amateur licence in 1935, with the call sign VK5DK, which he held until the declaration of war. After the war he did not renew his licence until 1949, when he was allocated the call VK5AQ. From 1949 he has been active, particularly on 160 metres and more recently in satellite communications. He was well known in the north of South Australia and made many friends in the area.

He had an excellent knowledge of native flora and was also actively interested in the boy Scouts whilst at Leigh Creek and was a strong supporter of the Legacy movement.

Tom will be greatly missed by his many amateur friends throughout Australia and overseas. He was one of nature's true gentlemen!

Deepest sympathy is extended to his wife, Margaret and his family.

Contributed by John Bulling VK5KX

DESMOND LEO BUTLER VK1DL

Desmond collapsed suddenly on the evening of April 28, and passed away on May 4, without regaining consciousness. He had enjoyed good health until then and was very active in community affairs and voluntary hospital work in the Canberra area.

Desmond was born in Lamerlo, South Australia in 1916, and in June 1935 entered the Royal Australian Navy, Communications Branch. He served on HMAS *Canberra* (1936), *Vampire* (1938), *Vendetta* (1939), *Australia* (1940), Herman Naval W/T Station (1943/46), and *Shropshire* (1946), as part of the Victory Contingent to England.

He left the Navy in 1947 as a Chief Petty Officer Telegraphist and entered the Commonwealth Public Service, Department of External Affairs in the communications area, and retired in 1976. He obtained his AOCP in 1977 and operated mobile on a complete around-Australia-trip by land cruiser the same year.

Desmond was a component CW operator and obtained his DXCC only a short time after being licensed. He also participated in several telephony networks and was well-known on the amateur bands.

Deepest sympathy is extended to his wife, Jean, son, Michael and daughter Geraldine. He will be sadly missed by his many friends and colleagues of the amateur fraternity.

Contributed by John Gore VK1PG

JOHN KELVIN GARDNER VK3NA

"Kely" passed away on May 21, at his home, Cannons Creek, Victoria. He was 72.

He obtained his amateur licence in 1931, whilst studying medicine at Melbourne University and later served with the AIF in the middle East and New Guinea.

Obituaries

He was a skilled surgeon and practised his profession for many years with great distinction and compassion.

In latter times, following the death of his wife, he retired to Cannons Creek on Westernport Bay where he could engage in his two favourite pastimes — amateur radio and sailing.

A high-point in his life was when he joined his sister and her husband in the West Indies, last year, and sailed in their 40 foot yacht through the Panama Canal and across the Pacific to Tahiti. His little FT-7 and a few metres of wire hauled to the mast-head gave great delight to his many amateur friends in VK who followed the yacht's progress.

The tragic death of his eldest son David VK3PBJ, a few weeks earlier doubtless hastened his own passing.

Keilvin leaves two sons, John and Rex, and four grandsons, to whom we extend our sympathy.

Contributed by Rolf Hallamore VK3ARH

CLIFF GOLD VK4CG

1926-1986

Cliff was born in Brisbane in 1906 and passed away peacefully on June 2, 1986.

He came on air in 1926 and experimented on the 5, 20, 32, 30, and 250 metre bands using a Hartley circuit with a UX210 tube. Power was from AC stepped up to 600 watts and rectified through 16 glass jars in bridge form. Grid leak was a jar of water and plate condenser of sheet glass and zinc.

He had QSOs worldwide.

When the Queensland Radio Transmitters League was formed, Cliff became Treasurer, International Contact Station, Vigilance Officer, and member of the QRTL Traffic Branch.

Cliff was a WIA Federal Councillor in 1928.

As mentioned in Amateur Radio in October 1982, in a Thumbnail Sketch, Cliff was 4GR's announcer and engineer, he was also Uncle Cliff and Willie Evergreen running the children's session. Later, Cliff was Manager and Projectionist of the Empire Theatre, also Toowoomba . . . from whence he sometimes transmitted sound to his wife Grace, on five metres.

Cliff's old friend of some 50 years, the late Bud W6CG (well-known in AMSAT-circles), changed his call sign out of respect for Cliff.

A private cremation service on June 5, was attended by a WIA representative.

Cliff is survived by his wife, Grace, to whom deepest sympathy is extended.

Contributed by Peter Brown VK4PJ

ARTHUR FORECAST VK3AM

With the death of Arthur on June 5, 1986, another member of our fraternity has become a Silent Key.

Arthur was one of the few amongst us who held a licence for 60 years. 3AM was one of the best known of those radio amateurs broadcasting music during the 1920s on 200 metres. One year, he won a gold cup for the most popular station.

On leaving school during the First World War, he became a cinematograph operator and spent most of his working life at the Victory Theatre, Saint Kilda, the Plaza Theatre, and more recently at the Croydon Drive-In.

In his younger days, he was keen on motor-bike racing and was a lifelong friend of the late Ron Hipwell, a well-known champion at the old Aspendale Motor Race Track.

In his latter years, when he lived at The

Silent Keys

It is with deep regret we record the passing of —

MR DESMOND LEO BUTLER	VK1DL
MR ARTHUR FORECAST	VK3AM
MR JOHN KELVIN GARDNER	VK3NA
MR CLIFF GOLD	VK4CG
MR TOM F ROBBINS	VK5AQ
MR G J WATTS	L30222

Basin, Victoria, he became an expert chicken sexer. He was a skilled mechanic, with a fine workshop and was well-known in Australia and overseas for his knowledge and construction of mobile antennas.

For some years he was Technical Storeman at Channel 2 on Mount Dandenong.

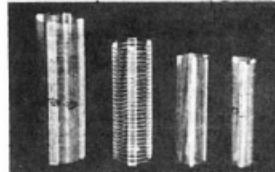
Arthur will be sadly missed from the daily net, which has been operating on 40 and 80 metres for about 25 years. He is only the third of this group to become a Silent Key, the others being Ivor Morgan VK3DH and Gil Miles VK2KL.

He was an early member of the Radio Amateur Old Timers Club and will be remembered by his many amateur friends both here and overseas.

Arthur's wife, Vera, died some years ago. Deepest sympathy is extended to his two sons and two daughters.

Contributed by Keith Ballantyne VK3AKB

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